IV.8 CULTURAL RESOURCES

The analysis in this chapter addresses potential impacts to cultural resources from implementing the Desert Renewable Energy Conservation Plan (DRECP) and Bureau of Land Management (BLM) Proposed Land Use Plan Amendment (LUPA). The Preferred Alternative and Proposed LUPA integrate renewable energy and resource conservation with other existing uses on BLM-managed lands within the LUPA Decision Area.

The primary consideration in quantifying impacts to cultural resources at this programmatic level of analysis is the extent to which cultural resources intersect with and are affected by the proposed Development Focus Areas (DFAs), transmission, and conservation lands within the LUPA Decision Area. See Volume III, Chapter III.8, Cultural Resources, for descriptions of the affected environment for Cultural Resources.

Appendix R2.8 (in Appendix R2) includes 22 tables supporting this chapter. The tables present data that estimate the number of archaeological and built-environment resources that might be impacted by the different components and technology types for each alternative. These tables present data by ecoregion subarea for each alternative and the number of acres impacted by technology type (solar, wind, geothermal, and transmission). The tables also identify the number of estimated resources in LUPA decision area lands (conservation lands, Variance Process Lands, and DFAs [Available Development Areas for No Action Alternative]). Specific tables are referenced throughout this chapter.

IV.8.1 Approach to Impact Analysis

As described in Chapter III.8, a cultural resource is an object or definite location of human activity, occupation, use, or significance identifiable through field inventory, historical documentation, or oral evidence. Cultural resources are categorized as buildings, sites, structures, objects, and districts (which include cultural landscapes and Traditional Cultural Properties) under federal law for the purposes of the National Environmental Policy Act [NEPA] and the National Historic Preservation Act [NHPA]. Historic properties are cultural resources included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). For the purposes of this impact analysis, impacts to National Historic Trails are also included.

Historically, cultural resources analyses have focused on sites; however, large-scale, landscape-focused analyses for cultural resources have been supported by recent federal policies. Department of the Interior (DOI) Secretary Sally Jewell issued Secretarial Order No. 3330 on October 31, 2013, which directed DOI agencies to "avoid potential environmental impacts from projects through steps such as advanced landscape-level planning that identifies areas suitable for development because of relatively low natural or

cultural resource conflicts" (SO 3330 2013). In April 2014 the Energy and Climate Change Task Force issued its report, *A Strategy for Improving the Mitigation Policies and Practices of the Department of the Interior* (Clement et al. 2014). This report highlights the challenges and opportunities associated with developing and implementing an effective mitigation policy. It also describes the key principles and actions necessary to successfully shift from project-by-project management to consistent, landscape-scale, science-based management of DOI lands and resources. Similarly, the California Office of Historic Preservation has specifically called out a need for cultural resources professionals to work on renewable energy projects to shift focus from the site level to the landscape level of assessment (OHP 2013). The landscape approach is particularly appropriate for programmatic documents. The current programmatic analysis acknowledges the challenges in this approach and uses existing data to formulate an initial framework that will facilitate transitioning to a comprehensive, detailed use of project-specific quality data at a regional scale in the future.

IV.8.1.1 General Methods

In analyzing potential impacts of concern to cultural resources, this chapter utilizes information presented in Chapter III.8 and Appendix R2.8. Only a small percentage of the LUPA Decision Area has undergone pedestrian survey; therefore, the total number and type of cultural resources are unknown. Existing data were used to estimate the number of archaeological and built-environment resources that might be impacted. The number of possible Traditional Cultural Properties (TCPs) or presence, and the size of any landscapes, was not estimated as these types of resources are not part of the dataset used to quantify cultural resources. However, both types of resources are likely to be impacted by project activities; larger DFA footprints will likely affect a greater number of TCPs and cultural landscapes through impacts to access and viewshed, as well as to ground disturbance. Impacts to these resources are therefore characterized in a qualitative manner in this document. To estimate the number of potentially impacted archaeological and built-environment resources, the BLM Cultural Resources Geodatabase (CRG) for the DRECP area was overlaid with the DFAs and Conservation Designation lands for each alternative. The CRG, compiled through December 2012 by BLM, contains archaeological and built-environment resource locations as well as survey information, but lacks data on cultural landscapes or TCPs.

These data were used to determine both archaeological and built-environment resource density for the overall DRECP area and for each of the 10 ecoregion subareas. Density was calculated from the number of known archaeological and built-environment resources (Volume III, Table III.8-4), divided by the number of acres surveyed within each ecoregion subarea (for tables analyzing by ecoregion subarea). For tables with analyses at the DRECP area level, the resource density was calculated using the known resources divided by the number of acres surveyed in the entire DRECP area. All ecoregion subareas and the DRECP

area have a resource density of less than one, with the exception of the Owens River Valley. As a final step for analysis, resource densities were multiplied by the number of acres within the different land types to arrive at an estimate of the number of resources within DFAs and the conservation designations. These estimates were used for the following analyses.

Because the DFAs only identify where future projects can be built, and because the exact locations of the projects within the DFA footprints are unknown, the analysis of direct impacts emphasizes a maximum development scenario (i.e., that projects could be built anywhere within a DFA); so the entire area of each DFA is considered to be the potential impact area. Indirect impacts are discussed more generally since they can extend beyond the boundaries of DFA footprints. The analysis describes common impacts to cultural resources from solar, wind, and geothermal projects and their associated transmission lines. In all cases, impacts to historic properties are best defined and determined in consultation with those people for whom the property is significant. The general discussion includes TCPs and landscapes as well as archaeological and built-environment resources. The more specific analysis defines both the impacts that could occur to all types of cultural resources within each alternative and the potential number of archaeological and built-environment resources that exist within areas designated for conservation.

Over 50 renewable energy projects are already operating or are under construction in the DRECP area. Five are on BLM lands and 47 are on private or non-BLM public lands. These projects have impacted resources within their boundaries; this chapter only considers impacts from future renewable energy development (Appendix O).

IV.8.2 Typical Impacts Common to All Action Alternatives

Impacts to cultural resources would be addressed on a project-specific basis in supplemental NEPA and NHPA processes for the evaluation of renewable energy and transmission projects. These projects require project-specific environmental review that addresses project-specific impacts to cultural resources as part of the approval process. Some of these impacts would be considered in government-to-government consultations between lead agencies and tribal governments. Impact analyses to cultural resources are based on typical impacts from renewable energy developments, including:

- Physical damage or alteration to all or part of a cultural resource.
- Isolation of the cultural resource or alteration of the character of the resource's setting when that character contributes to the resource's significance for the NRHP.
- Introduction of visual, auditory, olfactory, or atmospheric elements that are out of character with the resource or cause changes that may alter its setting.

While impacts to cultural resources would be determined on a project-specific basis, the development of solar, wind, and geothermal projects and their associated transmission lines share many of the same types of impacts. Certain activities associated with energy development have a greater potential for adversely affecting cultural resources than others. Ground-disturbing activities (e.g., grading and digging) have the highest potential for disturbing cultural resources; however, pedestrian and vehicular traffic and the indirect impacts of earth-moving activities (e.g., soil erosion), may also have an adverse effect. Visual, olfactory, and auditory changes can affect the integrity of setting and feeling associated with cultural resources. Cultural resources are nonrenewable and, once damaged, cannot be recovered.

Short-term impacts would occur for only short periods of time during and after proposed actions (e.g., construction noise). Long-term impacts would occur for extended periods of time after development and construction are complete. All ground disturbances are considered long-term impacts. Many long-term impacts are, however, not permanent and may ultimately be reversed during project decommissioning. This is especially true with impacts to setting.

IV.8.2.1 Impacts of Renewable Energy and Transmission Development

Utility-scale renewable energy and transmission development can potentially impact all types of cultural resources (see Chapter III.8). The activities associated with this development include site characterization, construction and decommissioning, and operations and maintenance. Examples of activities performed during each of these development phases include:

- Site reconnaissance and surveys if they result in a major disturbance of a resource.
- Ground-disturbing activities.
- Structure installation.
- Structure removal.
- Restoration and revegetation.
- Structure interference.
- General maintenance activities.

While impacts to cultural resources differ in important aspects based on the particular technologies employed, many impacts are common to all technologies and development approaches.

IV.8.2.1.1 Impacts of Site Characterization

Activities associated with preconstruction site characterization for all renewable energy technologies could physically damage cultural resources if ground disturbance is required (e.g., grading for new roads). During initial preconstruction activities for wind energy development, impacts include geotechnical borings, installation of temporary meteorological stations, and access roads and staging areas for each of these. Drilling temperature gradient wells during the exploration phase is specific to geothermal projects. Shallow core sampling may also occur for solar projects during facility siting investigations.

Site characterization activities associated with site reconnaissance and surveys generally involve site-specific surveys for various resources, including biological species and cultural resources. There is little potential for damage of cultural resources during surveys unless sub-surface testing is required to assess the potential NRHP eligibility of a resource; testing can result in a major disturbance of the resource. Methods employed to identify cultural resources within a project's Area of Potential Effects (APE) may include:

1. Contacting regional information centers of the California Historical Resource Information System for information on previously recorded sites and surveys conducted in or near the APE.
2. Conducting research at local historical societies and museums or other repositories of historical information.
3. Contacting the Native American Heritage Commission (NAHC) to identify properties in the NAHC Sacred Lands File and the non-federally recognized Native American groups requiring consultation.
4. Consulting with the appropriate federally recognized and non-federally recognized Native American groups to identify important cultural resources and traditional places (consultation should also focus on issues and resources identified in Volume III, Section III.9.4).
5. Assessing, when subsurface testing is required to determine potential for eligibility to the NRHP; limited archaeological excavation that does not exceed the threshold of 5% of the site area (or 4 cubic meters of archaeological soil) may be done to determine eligibility and inform project siting.
6. Conducting pedestrian field surveys to identify existing cultural resources.
7. Geological and geomorphological characterizations of the APE (which can include backhoe trenching).

8. Failure to make a good faith effort to identify cultural resources within the APE, which could result in noncompliance with federal laws and guidelines and degradation of resources during ground-disturbing activities.

Geological and geomorphological characterization can support site reconnaissance efforts by identifying the potential for surficial and buried cultural resources; however, there is the potential to damage cultural resources from trenches or other ground disturbance.

Ground-disturbing activities during site reconnaissance and surveys would result from installing temporary meteorological stations or creating temporary access roads for geo-technical borings and trenching, or for meteorological stations. These activities may damage or materially alter cultural resources, particularly archaeological sites. Vibrations caused by the borings might cause structural damage to historic buildings and could also impact rock art sites and diminish the integrity of the vertical location of intact subsurface archaeological deposits, causing an adverse impact to a historic property.

New access roads could increase public access to previously inaccessible areas. This increased access could then result in disturbance of those areas and create opportunities for looting or vandalizing cultural resources. Fugitive dust from vehicle traffic can degrade the research value and condition of rock art by adversely affecting the patina/ petroglyph contrast or degrading the pictograph pigments. Temporary impacts to the visual integrity of cultural resources can also result from site characterization if the visual setting is an important characteristic of the resource's significance, such as in cultural landscapes and TCPs, and on trails.

IV.8.2.1.2 Impacts of Construction and Decommissioning

Physical impacts to cultural resources would result from the extensive ground-disturbing activities necessary for the construction and decommissioning of renewable energy projects. Additionally, vegetation clearing and dust generated during the construction phase would result in temporary impacts to the visual setting of cultural resources. The permanent presence of renewable energy structures, ancillary facilities, and associated transmission lines would result in long-term visual impacts to cultural resources whose importance or NRHP eligibility is tied to its visual setting.

Construction

The construction of renewable energy facilities affects cultural resources primarily during two broad categories of activity: ground disturbance and structure installation.

Ground Disturbance. Examples of ground-disturbing activities include (1) construction of staging areas and access roads, (2) grading and vegetation clearing, (3) foundation

excavations, and (4) building fences and drainage ditches. These activities could result in the alteration or degradation of cultural resources in several ways:

- Temporary impacts to the visual setting of buildings and structures, trails, cultural landscapes, TCPs, and sacred sites could result from the use of large-scale machinery, equipment, and vehicles. Increased dust could also be generated.
- Construction-generated noise could affect the settings of cultural resources, particularly TCPs or sacred sites.
- Increases in human access and the subsequent disturbance of cultural resources could result from establishment of corridors and facilities in otherwise intact and inaccessible areas. Increased human access could expose these resources to a variety of stressors including trampling artifacts, creating tracks and dust from recreational vehicles, illegally collecting artifacts, vandalizing rock art and other resources, and inadvertently damaging unrecognized resources.
- Vibration from construction vehicles and other activities could damage historic buildings and rock art sites and alter the integrity of the vertical location of intact subsurface archaeological deposits.
- Fugitive dust from construction vehicles and heavy equipment could degrade the research value and condition of rock art by adversely affecting the patina/petroglyph contrast or damaging the pictograph pigments. Grading and vegetation clearing could diminish the integrity of a historic property's significant historic features, especially the visual setting of cultural landscapes, trails, TCPs, and sacred sites.
- Erosion of soils, project runoff, and oil or other contaminant spills could cause damage to cultural resources located both within the project footprint and in areas either downslope or downstream.

Structure Installation. Examples of activities related to structure installation include erecting transmission line towers, substations, wind turbines, solar towers and troughs, and steam turbines. Additional activities include pulling and stringing transmission lines and building permanent security fencing. Impacts to cultural resources from structure installation would be similar to those described for ground disturbance. Each activity results in surface and subsurface disturbance, with the potential to damage cultural resources.

Long-term impacts can also result from the permanent presence of renewable energy structures. Introduction of visual elements can diminish the integrity of a historic property's significant historic features, especially buildings and structures, trails, cultural landscapes, TCPs, sacred sites, and other cultural resources for which the visual setting is an important component of a resource's significance.

Decommissioning

Similar to construction activities, decommissioning of a renewable energy project can be divided into two broad categories: removal of structures and restoration and revegetation. Site decommissioning, reclamation, and abandonment would create the least ground disturbance because those activities would be confined to the original area affected during construction. If additional work areas are needed beyond those disturbed during construction, there would potentially be new impacts similar to those occurring during project construction ground disturbances. These impacts may at times be transitory since the removal of structures may be considered to a positive effect on the setting for cultural resources.

Removal of Structures. The removal of renewable energy project structures would involve removal of all aboveground facilities (e.g., wind turbines, solar power towers, heliostats, and solar photovoltaic arrays) as well as graveled or paved work pads and roads. Cultural resources could be affected by the removal of subsurface facilities (e.g., grounding rods and grids, tower and building foundations, natural gas pipelines). These components may be removed to a minimum depth of 3 feet from the surface or otherwise abandoned in place.

Laydown areas would be established for decommissioning. Impacts to cultural resources from the removal of structures would be similar to those described earlier, as long as laydown areas and other decommissioning activities are not located within the original project footprint.

If access roads are left in place, impacts to cultural resources from increased human access would be similar to those described for the creation of new access roads. The damage to these resources may increase during this phase because the area would no longer be periodically monitored by either an operator or a lead agency through mitigation monitoring.

Visual impacts to cultural resources may be mostly removed after decommissioning, assuming the site can be restored to its preconstruction state. However, effective restoration is difficult in the desert environment and visual impacts to cultural resources could be permanent. Despite the usually temporary nature of visual impacts to cultural resources, these impacts can be severe and should require mitigation if the visual impact is permanent.

Restoration and Revegetation. Examples of activities related to restoration and revegetation include remediation of spills and contaminated soils, reseeding of the project site, and removal of all gravel packs and paving. Impacts to cultural resources from the restoration and revegetation of a project site are unlikely because resources in the areas slated for restoration and revegetation would have been accounted for during the earlier phases of project development. However, any cultural resources situated in close proximity to restoration and revegetation areas could be adversely affected in an unanticipated manner.

Restoration could create long-term visual impacts to buildings and structures, trails, cultural landscapes, TCPs, and sacred sites if the contours of restored areas are not identical to pre-project conditions. Additionally, invasive species may re-colonize reclaimed areas, causing contrasts in color and texture and potential impacts to culturally sensitive plants that are part of a cultural landscape or traditional cultural property.

IV.8.2.1.3 Impacts of Operations and Maintenance

Fewer physical impacts to cultural resources would occur from the operation and maintenance of renewable energy projects, although the duration of visual, auditory, and olfactory effects can be long lasting. Visual degradation of cultural resource settings could result from renewable energy development and its associated land disturbances.

Maintenance activities that could potentially impact cultural resources include (1) fire and fuel management, (2) cleaning and maintenance of roads and facilities (including buried facilities such as pipelines and drainages), and (3) night lighting. Vegetation management to reduce fire risk within transmission rights-of-way (ROWs) could impact cultural resources, particularly if the area has not been properly surveyed for cultural resources before construction. Cleaning and maintaining roads and facilities, particularly with water, could impact cultural resources if resources were uncovered by erosion, or if ground-disturbing activities were to somehow impact unknown buried resources. Visual cultural resources could be affected by night lighting, which could disrupt night-sky viewing.

IV.8.2.2 Impacts of the Ecological and Cultural Conservation and Recreation Designations

Renewable energy development would be limited in ecological, cultural, conservation, and recreation designations. As a result, impacts to cultural resources from resource protection could be beneficial if resources are already protected or preserved. This could to some extent offset potentially adverse effects of renewable energy development. However, historic properties are unique and nonrenewable, so protecting historic properties in Conservation Designations as an offset to impacts elsewhere does not eliminate adverse effects to other historic properties. Additionally, allowable activities that require ground-disturbing activities, like digging holes for plants, could also adversely impact cultural resources.

Because LUPA land designations would be managed to protect ecological, historic, cultural, scenic, scientific, and recreation resources and values, they would also confer general protection for cultural resources. While other land uses are allowed within these areas, other uses must be compatible with the resources and values that the land designation is intended to protect.

Impacts to cultural resources in Areas of Critical Environmental Concern (ACECs), National Landscape Conservation System (NLCS) lands (also referred to interchangeably as National Conservation Lands), and wildlife allocations would likely be beneficial since disturbance caps in these areas conserve and protect resource values. These disturbance caps and other management actions would minimize soil disturbance, erosion, and other adverse impacts, providing protection for cultural resources. However, some habitat conservation and other biological actions could create ground disturbance and damage cultural resources.

Details on allowable uses and management actions within NLCS lands are presented in the Proposed LUPA description in Volume II. Details on the goals, objectives, allowable uses, and management actions for each ACEC, Special Recreation Management Area (SRMA), and Extensive Recreation Management Area (ERMA), are presented in Section II.3.4, Goals and Objectives and Conservation Management Actions (CMAs). To the extent SRMAs are designated, increased accessibility to areas with cultural resources could lead to looting or vandalism. A major difference for cultural resources between the No Action Alternative and the other alternatives is that Conservation and Management Actions (CMAs) are proposed for these conservation designations under the alternatives.

IV.8.3 Impact Analysis by Alternative

The following sections describe the cultural resources impact analysis for the No Action Alternative, the Preferred Alternative, and Alternatives 1 through 4. Each alternative is compared with the Preferred Alternative. The percent difference between the number of estimated archaeological and built-environment resources in different land designations is used in some analyses. For example, to compare how many archaeological and built-environment resources are estimated within the DFAs (for the LUPA Decision Area within the DRECP area) between the Preferred Alternative and Alternative 1, the difference between total estimated archaeological and built-environment resources would be divided by the lower total and multiplied by 100 to get the percent difference. The number of cultural resources estimated for the entire DRECP area does not change per alternative; the boundaries and acreages change. Therefore, the higher the acreage, the more cultural resources are estimated to be either impacted or conserved.

IV.8.3.1 No Action Alternative

The No Action Alternative assumes the state's renewable energy goals would be achieved absent the DRECP Proposed LUPA and Final EIS, and that renewable energy, transmission development, and mitigation for projects in the LUPA Decision Area would proceed on a project-by-project basis in a pattern consistent with past and ongoing renewable energy and transmission projects. There are an estimated 583,329 cultural resources located within BLM land in the DRECP area under the No Action Alternative (Appendix R2, Table

R2.8-1). Figure IV.8-1 shows the estimated number of cultural resources within Available Development Areas (ADAs), by DRECP ecoregion subarea.

Any areas currently excluded from development by statute, regulation, or proclamation would retain those exclusions. Any areas administratively excluded would continue to be assessed based on management guidance in BLM land use plans. Without the Proposed LUPA, renewable energy development would likely continue to be patchy and fragmented, ultimately resulting in the increased likelihood of cumulative impacts to important cultural resources within the LUPA Decision Area.

Under the No Action Alternative, existing land management plans within the LUPA Decision Area (California Desert Conservation Area [CDCA] Plan, as amended; Caliente Resource Management Plan [RMP], and Bishop RMP) would continue to allow renewable energy and transmission development within certain land designations, including Solar Energy Zones (SEZs) and Solar Variance Lands. Individual projects would continue to require individual land use plan amendments prior to their approval if they are sited outside of SEZ and Solar Variance Lands.

Table R2.8-3 presents the estimated number of archaeological and built-environment resources within the No Action Alternative's available development areas on BLM lands. The largest number (1,963) of archaeological and built-environment resources could be affected by solar energy projects. TCPs and landscapes are not included in this calculation since these resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized qualitatively in this document.

Table R2.8-2 presents the estimated number of archaeological and built-environment resources within existing ACECs and SRMAs. The model shows 51,332 resources within existing SRMAs and 87,317 resources within existing ACECs. Existing ACECs and wildlife allocations would continue to protect all types of cultural resources because of their disturbance limitations.

IV.8.3.1.1 Impacts of Renewable Energy and Transmission Development

Under the No Action Alternative, the existing land management plans within the LUPA Decision Area (CDCA Plan, as amended; Caliente RMP; and Bishop RMP) would continue to allow for renewable energy and transmission development within certain land designations, including Solar Energy Zones (SEZs) and Solar Variance Lands. Individual projects would continue to require individual land use plan amendments prior to their approval if they are sited outside of SEZ and Solar Variance Lands.

Approximately 2,804,000 acres of Available Development Areas (ADAs) are available in the DRECP area that could be developed under the No Action Alternative. This includes only

BLM lands. Impacts to cultural resources on this scale would be substantial and dispersed across the DRECP area. Impacts were calculated for LUPA lands within the DRECP area.

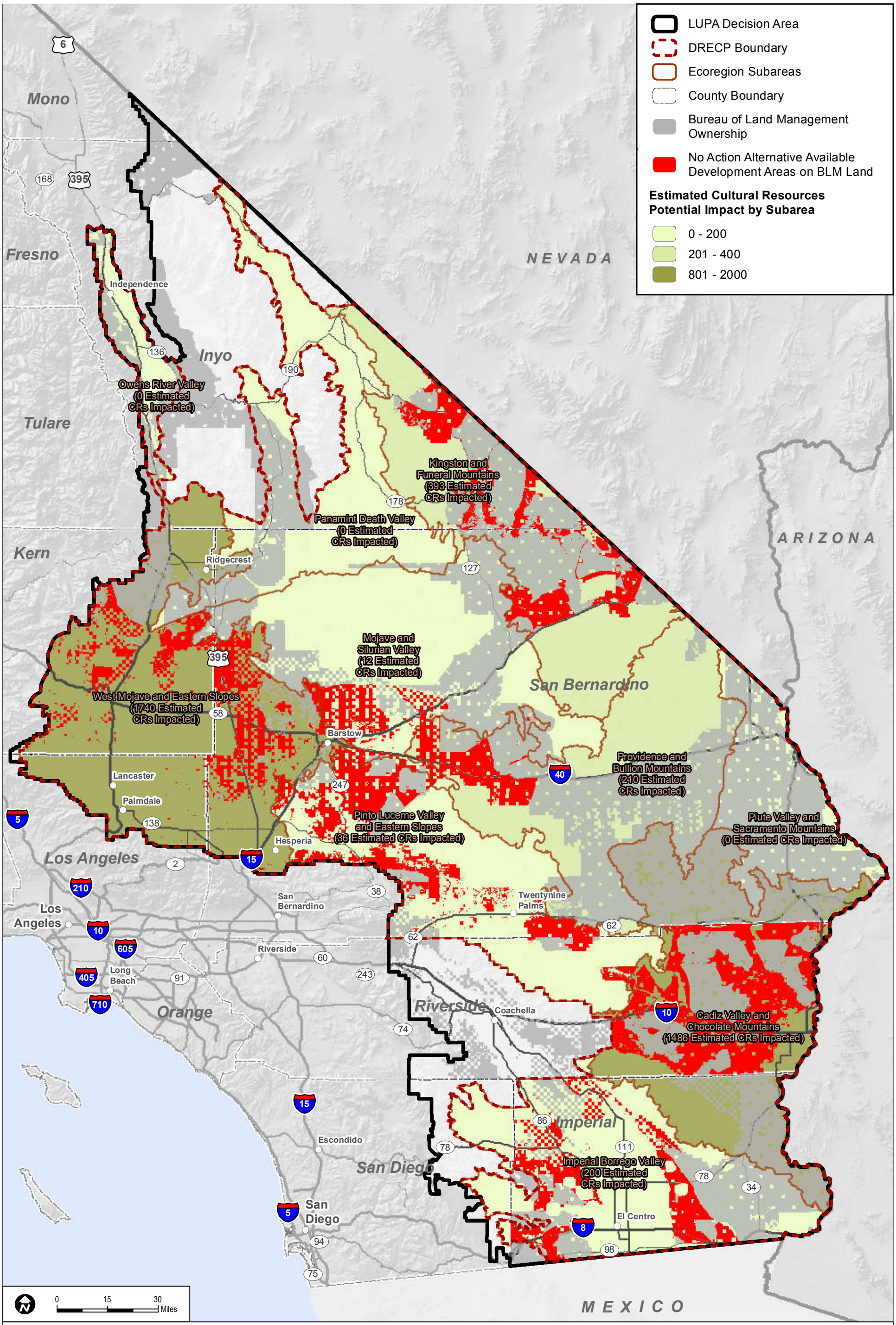
As described in Section IV.8.1.1, an estimated 4,077 archaeological and built-environment resources could be affected within the developable area of the No Action Alternative (Appendix R2.8, Table R2.8-3). Table R2.8-3 presents the estimated number of archaeological and built-environment resources within the No Action Alternative's available development areas on BLM lands. The largest number (1,963) of archaeological and built-environment resources could be affected by solar energy projects. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized qualitatively in this document.

While current to December 2012, it is important to note that this data has varying degrees of completeness, with information on some resources more detailed than others. In addition, NRHP eligibility was not available as a resource attribute; this is an important factor because understanding its significance under applicable regulatory standards is critical to determining the severity of impacts to resources. The identification, evaluation, and treatment of cultural resources would have to be conducted on a project-specific basis to ensure that as-yet-unidentified cultural resources are taken into account. The impacts to cultural resources under the No Action Alternative follow.

Impact CR-1: Effect on historic period built-environment resources.

Section III.8.2.1 defines historic period built-environment resources. These resources can contribute to landscapes and TCPs.

Site Characterization. Damage or alteration of historic period built-environment resources could result from ground-disturbing activities and site characterization activities such as geotechnical borings, installation of meteorological stations, and establishment of temporary access roads for borings or meteorological stations. Temporary impacts to the visual setting could result from construction vehicles and increased dust generated during ground disturbances. Long-term impacts to the visual setting of historic period built-environment resources could result from the permanent presence of project structures.



Sources: ESRI (2014); BLM (2015); RECON (2015)

FIGURE IV.8-1

Estimated Number of Cultural Resources within ADA by DRECP Ecoregion Subarea – No Action Alternative

DRECP Proposed LUPA and Final EIS

October 2015

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-1.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

Construction and Decommissioning. Damage or alteration of historic period built-environment resources could result from ground-disturbing activities such as the construction of staging areas and access roads, grading and vegetation clearing, and foundation excavations. Site decommissioning would have the fewest impacts if ground disturbance is confined to the original project area footprint. Temporary impacts to the visual setting could result from construction vehicles and increased dust generated during ground disturbances. Long-term impacts to the visual setting of historic period built-environment resources could occur from permanent project structures. Visual impacts to historic period built-environment resources would mostly be removed after decommissioning, as long as the site was properly restored to its preconstruction state.

Operations and Maintenance. Ground disturbance would be limited to vegetation clearance and to cleaning, maintaining, and repairing roads and facilities. Damage or alteration of historic period built-environment resources could occur if these ground-disturbing activities take place in areas that were not properly surveyed before construction. Vibration from operations and maintenance could result in long-term impacts to the structural integrity of built-environment resources. Long-term visual and sensory impacts to historic period built-environment resources could therefore result from renewable energy projects and their associated land disturbances and ancillary facilities.

Impact CR-2: Effect on prehistoric and historic period archaeological resources.

See Section III.8.2.1 for the definition of prehistoric and historic period archaeological resources. Note that these resources can contribute to landscapes and TCPs.

Site Characterization. Damage or alteration of prehistoric and historic period archaeological resources could result from ground-disturbing activities such as geotechnical borings, installation of meteorological stations, and establishment of temporary access roads for borings or meteorological stations. Temporary and occasionally long-term impacts to the visual setting could result from construction vehicles and increased dust generated during ground disturbances.

Construction and Decommissioning. Damage or alteration of prehistoric and historic period archaeological resources could result from ground-disturbing activities in a project-specific area such as construction of staging areas and access roads, grading and vegetation clearing, and foundation excavations. Site decommissioning would have the fewest impacts to prehistoric and historic period archaeological resources if ground disturbance is confined to the original project area. Temporary impacts to the visual setting of prehistoric and historic period archaeological resources, such as trails and rock art sites, could result from construction vehicles and increased dust generated during ground disturbance. Long-term impacts to the visual setting of prehistoric and historic period archaeological

resources could occur from permanent renewable energy structures. Visual impacts to prehistoric and historic period archaeological resources would mostly be removed after decommissioning, as long as the site was properly restored to its preconstruction state.

Operations and Maintenance. Few physical impacts to known and managed prehistoric and historic period archaeological resources could occur from the operation and maintenance of renewable energy projects since ground-disturbance activities would be limited to clearing vegetation and cleaning and maintaining roads and facilities. Damage or alteration of prehistoric and historic period archaeological resources could occur if ground-disturbing activities took place in areas that were not properly surveyed for cultural resources prior to construction. However, it is important to note that even if areas are surveyed prior to construction, there is still the potential for inadvertent damage to known sites, or for activities to uncover buried resources during later stages of ground disturbance; there are often no surface indications of a site. Soil erosion from water used to clean roads and facilities could expose buried prehistoric and historic period archaeological resources. Long-term visual and sensory impacts to prehistoric and historic period archaeological resources, such as trails, could therefore occur from renewable energy development and its associated land disturbances and ancillary facilities.

Impact CR-3: Disturb human remains, funerary objects, sacred objects, and items of cultural patrimony.

Section III.8.2.1 defines human remains and cultural items. These can contribute to landscapes and TCPs.

Site Characterization. The disturbance of human remains or cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony, is unlikely to occur during site characterization because site surveys should identify these cultural items before site characterization begins. Moreover, ground-disturbing activities during site characterization are limited in their depth and total disturbance, and should therefore have low potential for disturbing human remains and other cultural items.

Construction and Decommissioning. Disturbance of human remains or cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony, could result from construction-related ground disturbance. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of those burial and cultural items, which are typically unmarked. Decommissioning is unlikely to cause disturbance of these cultural items, however, if ground disturbance is confined to the original project area footprint.

Operations and Maintenance. Disturbance of human remains or cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony, is unlikely to occur from operations and maintenance since ground-disturbance activities would be limited to clearing vegetation and cleaning and maintaining roads and facilities. Disturbance of these cultural items could occur in areas that are not properly surveyed for cultural resources. However, it is important to note that even if areas are surveyed before construction, there is still the potential to uncover these types of cultural items during later stages of ground disturbance since there are often no surface indications of them.

Impact CR-4: Effect on Cultural Landscapes.

Section III.8.2.1 defines cultural landscapes. TCPs, archaeological resources and built environment resources may contribute to cultural landscapes, and cultural landscapes may be considered TCPs.

Site Characterization. Damage or alteration of cultural landscapes could result from ground-disturbing and site characterization activities such as geotechnical borings, installation of meteorological stations, and establishment of temporary access roads for borings or meteorological stations. Access roads and meteorological stations could also result in impacts to the visual setting of cultural landscapes.

Construction and Decommissioning. Damage or alteration of cultural landscapes could result from ground-disturbing activities such as the construction of staging areas and access roads, grading and vegetation clearing, and foundation excavations. Site decommissioning would have the fewest impacts if ground disturbance is confined to the original project area footprint. Construction vehicles and increased dust generated during ground disturbances and other construction activities could temporarily impact the visual setting of cultural landscapes. Noise generated by construction could temporarily impact the auditory environment of cultural landscapes. Long-term impacts to the visual setting of cultural landscapes could occur from project structures over the life of a project. Visual impacts to cultural landscapes would mostly be removed after decommissioning, as long as the site was properly restored to its preconstruction state.

Operations and Maintenance. Ground disturbance would be limited to clearing vegetation, cleaning, and maintaining and repairing roads and facilities. Damage or alteration of cultural landscapes could occur if these ground-disturbing activities take place in areas that were not properly surveyed for cultural resources before construction. Soil erosion from water used to clean roads and facilities and vegetation clearance could impact the visual setting of cultural landscapes. Long-term visual and sensory impacts to cultural landscapes could therefore result from renewable energy projects and their associated land disturbances and ancillary facilities.

Impact Reduction Strategies

Laws and Regulations

Existing laws and regulations related to the identification, protection, and preservation of cultural resources are described in Volume III, Section III.8.1, Regulatory Setting. These laws may aid in reducing the impacts of renewable energy development projects in the absence of implementation of the Proposed LUPA.

Design Features from the Solar Programmatic Environmental Impact Statement

In addition to the regulations described earlier, several design features identified in the BLM Solar Programmatic Environmental Impact Statement (Solar PEIS) are in effect now within the LUPA Decision Area for solar projects. Those design features are presented here, as defined in that document (Sections 5.15.1 and 5.15.2 for Cultural Resources and Sections 5.16.1 and 5.16.2 for Native American Concerns). The design features also appear in full in Appendix W.

The design features would help avoid or minimize impacts to cultural resources prior to the development of project-specific mitigation measures. They are presented by project phase or activity: (1) general design features; (2) site characterization, siting and design, and construction; (3) operations and maintenance; and (4) reclamation and decommissioning.

<u>General Design Features</u>

CR1-1 Project developers shall coordinate with BLM early in the planning process to identify and minimize cultural resource impacts; BLM will consult with other federal, tribal, state, and local agencies as appropriate.

a. Determining cultural resource impacts shall include, but is not limited to, the following:

- Initiating Section 106 consultations between BLM, SHPOs, Indian tribes, and other consulting parties early in the project planning process. Thresholds for the involvement of and review by the Advisory Council on Historic Preservation (ACHP) include nonroutine interstate and/or interagency projects or programs; undertakings adversely affecting National Historic Landmarks; undertakings that BLM determines to be highly controversial; and undertakings that will have an adverse effect and with respect to which disputes cannot be resolved through formal agreement between BLM and the SHPO, such as a Memorandum of Agreement (MOA).

- Conducting site-specific Section 106 review for individual projects. BLM will require the completion of inventory, evaluation, determinations of effect, and treatment in accordance with the Solar PA. This Solar PA is titled "Programmatic Agreement among the United States Department of the Interior, Bureau of Land Management, the Arizona State Historic Preservation Officer, the California State Historic Preservation Officer, the Colorado State Historic Preservation Officer, the New Mexico State Historic Preservation Officer, the Nevada State Historic Preservation Officer, the Utah State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Solar Energy Development on Lands Administered by the Bureau of Land Management."

b. General methods to minimize cultural resource impacts may include, but are not limited to, the following:

- If historic properties that could be adversely affected are present in the project location, developing an MOA tiered to the Solar PA to address the mitigation steps that will be followed to avoid, minimize, or mitigate adverse effects on historic properties.
- Where BLM determines that a specific proposed solar energy project has the potential to adversely affect historic properties but those effects cannot be determined prior to its approval, BLM may elect to review a proposed solar energy project using an undertaking-specific PA executed pursuant to 36 Code of Federal Regulations (CFR) 800.6, instead of following the procedures outlined in the overarching Solar PA.
- Using training/educational programs for solar company workers to reduce occurrences of disturbances, vandalism, and harm to nearby historic properties. The specifics of these sensitivity training programs shall be established in project-specific consultations between the applicant, BLM, the SHPO, and affected Indian tribes, and will be articulated in a WEAP [worker environmental awareness program]. Such education and awareness plans will incorporate adaptive management protocols for addressing changes over the life of the project, should they occur.
- Securing a performance and reclamation bond for all solar energy generation facilities to ensure compliance with the terms and conditions of the ROW authorization. When establishing bond

amounts and conditions, the BLM authorized officer shall require coverage of all expenses tied to cultural resources identification, protection, and mitigation. These may include, but are not limited to, costs for ethnographic studies, inventory, testing, geomorphological studies, data recovery, curation, monitoring, treatment of damaged sites, and generation and submission of reports (see ROW authorization policies, Section 2.2.1.1 of the Final Solar PEIS).

Site Characterization, Siting and Design, Construction

CR2-1 Solar facilities shall be characterized, sited, and designed, and constructed in coordination with BLM to minimize cultural resource impacts.

a. Methods to minimize impacts to cultural resources shall include but are not limited to, the following:

- BLM determining the APE for each proposed solar energy project, to include a review of existing information, and efforts to seek information from and views of tribes and other parties likely to have knowledge of or concerns with historic properties in the APE. This information will be supplemented by discussions at pre-application meetings with the solar energy project applicant, the SHPO, and affected tribes regarding project designs, sacred sites, traditional cultural properties (TCPs), and proposed cultural resource inventory strategies.
- BLM consulting the SHPO, affected tribes (regarding the treatment of adverse effects for those property types on which the tribes indicate at pre-application or other meetings they wish to provide input), and any other consulting parties, if National Register of Historic Places (NRHP)-eligible properties are present at the site and would be adversely affected. BLM will seek agreement to avoid, minimize, or mitigate adverse effects on historic properties. BLM will execute an MOA with the SHPO to conclude the Section 106 process and will file a copy with the ACHP. Where BLM and the SHPO are unable to execute an MOA, BLM will invite the ACHP to participate in an undertaking-specific MOA. The MOA will specify the treatment for which BLM will be responsible, and which will be implemented by the solar applicant.
- Undertaking a Class III inventory of the APE. If BLM decides to require less than a Class III inventory for the entire APE, BLM will

seek additional views of the SHPO, affected tribes, and other parties and determine the final inventory strategy that best represents a reasonable and good-faith effort to carry out appropriate identification efforts.

- Conducting inventories according to the standards set forth in the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 Federal Register [FR] 44716); BLM Handbook H-8110 (Handbook for Identifying Cultural Resources); revised BLM Manual 8110; and applicable BLM or SHPO survey, site record, or reporting standards. All inventory data must be provided to BLM in digitized or paper format that meets BLM accuracy standards, including shape files for surveyed areas.
- Bringing any unexpected discovery of cultural resources during any phase of development (construction, operations and maintenance, or decommissioning) to the attention of the responsible BLM authorized officer immediately, as specified in the PA. Work shall be halted in the vicinity of the find. The area of the find shall be protected to ensure that the resources are not removed, handled, altered, or damaged while they are being evaluated and to ensure that appropriate mitigate or protective measures can be developed and implemented.

b. Methods to minimize cultural resource impacts may include, but are not limited to, the following:

- Including in the MOAs measures for management of historic properties, in situations where historic properties require management or monitoring for avoidance and protection within or near a project's boundaries. Such measures will specify the preparation and implementation of steps to lessen the adverse effects of the undertaking upon those aspects of NRHP eligibility criteria that make the historic properties eligible for nomination to the NRHP.
- Requiring that surface disturbance be restricted or prohibited within the viewshed of such property types when their eligibility is tied to their visual setting to protect NRHP-eligible traditional cultural properties, sacred sites, or historic trails from visual intrusion and to maintain the integrity of their historic setting unless acceptable mitigation is proposed.

- Employing cultural field monitors (appropriate for the resource anticipated) to monitor ground-disturbing activities (for example in geomorphic settings, such as in shifting sands, where buried deposits may be present) in cases where there is a probability of encountering cultural resources during construction that could not be detected during prior Class III inventories. Monitoring plans shall be specified within MOAs.
- Encouraging the use of previously disturbed lands and lands determined by archeological inventories to be devoid of historic properties.

Reclamation and Decommissioning

CR3-1 Prior to reclamation activities, BLM may require further planning for treatment of historic properties or planning for mitigation addressing reclamation activities.

CR3-2 BLM shall be notified prior to the demolition or substantial alteration of any building or structure. If judged necessary by BLM, the developer will be required to evaluate the structures for their significance employing professionally qualified architects or historic architects. If structures slated for demolition are found to be eligible for listing on the NRHP, they will be recorded to Historic American Building Survey and/or Historic American Engineering Record standards before alteration or removal.

CR3-3 Project developers shall confine soil-disturbing reclamation and decommissioning activities to previously disturbed areas. Known historic properties will be avoided during these activities.

Typical Mitigation Measures

Adverse effects to historic properties (NRHP-eligible cultural resources) would be resolved on project-specific levels. As part of this process, resource identification efforts including pedestrian surveys, formal government-to-government tribal consultation for both state and federal lead agencies, and engagement with Native American communities would all be necessary. Note that the mitigation measures that follow do not necessarily lessen impacts to minor levels. Additionally, as with resource identification, assessment of effects and mitigation measures intended to resolve those effects should be developed in consultation with communities, both Native American and others, that attach religious or cultural significance to the resources. For projects subject to Section 106 of the NHPA, the State Historic Preservation Officer (SHPO) or THPO would also be party to this consultation and

the resulting mitigation measures would be memorialized in a Memorandum of Agreement. Under the No Action Alternative these project-specific efforts would occur as they have in the past, but without the guidance provided in the Proposed LUPA. Examples of ways to resolve project adverse effects in the absence of LUPA include the following:

- Develop a treatment plan for the unanticipated discovery of cultural resources during all phases of project development, including procedures for work to be halted in the vicinity of a find. The area of the find would then be protected to ensure that resources are not removed, handled, altered, or damaged while they are evaluated, and until the adverse effects are resolved.
- Develop a treatment plan for the inadvertent discovery of human remains or suspected human remains, cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony in accordance with applicable laws and regulations, including the Native American Graves Protection and Repatriation Act and BLM Instruction Memorandum No. CA-2010-024.
- Train project personnel on the importance of cultural resources and implement procedures to avoid cultural resources and report all culturally sensitive resources.
- Employ cultural resource and tribal monitors during ground-disturbing activities when field conditions merit.
- Follow best management practices (BMPs) outlined in Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands (DOI 2013), some of which include the:
    - Use of surface treatments of introduced materials to reduce the visual impact of those materials.
    - Use of specific lighting, design, and operations to reduce impacts to night-sky viewing.
- Implement construction standards that would prevent toxic chemicals from entering waterways, minimize the chance of hazardous spills, and implement measures to prevent excessive and man-made soil deposition and erosion.
- Create data recovery plans that would resolve adverse effects to NRHP-eligible cultural resources that could be impacted by requiring some knowledge of the scientific value and analysis of the deposited cultural material before development.
- Implement construction standards that reduce the amount of fugitive dust generated during project construction.
- Conduct analyses to determine the impact of vibration from ground-disturbance activities (such as geotechnical boring) on the structural integrity of built-environment

resources and prehistoric resources such as rock art and the vertical locations of intact subsurface archaeological deposits.

- Record information on building or structures in a Historic American Building Survey/ Historic American Engineering Record at a level compatible with National Park Service (NPS) standards. Adequate recordation of a built-environment resource shall include:
    - Site-specific history and appropriate contextual information regarding the particular resource, in addition to archival research and comparative studies.
    - Accurate mapping of the noted resources, scaled to indicated size and proportion of the structures.
    - Architectural descriptions of the structures.
    - Photographic documentation of designated resources.
    - Recordation using measured architectural drawings.
- Require the preservation or reuse of an eligible structure to follow DOI's *Standards and Guidelines for Archeology and Historic Preservation*.
- Historic American Building Survey/Historic American Engineering Record documentation does not provide adequate mitigation to reduce impacts to a minor level, therefore projects would normally be required to take additional steps to capture the history and memory of the resource and share this information with the public using various methods such as Web media, static displays, interpretive signs, use of on-site volunteer docents, or informational brochures.
- Develop measures to address impacts to cultural resources during operation and maintenance activities.
- Establish conservation easements where individual resources could be preserved.
- Require that staff who write and implement the required plans meet the U.S. Secretary of Interior's Professional Qualifications Standards, as published in 36 CFR 61 for the relevant cultural resources specialty.
- Require technical reports to meet the requirements outlined in California Office of Historic Preservation's Archaeological Resource Management Reports: Recommended Contents and Format.
- Address impacts to cultural resources at a landscape scale following the guidance in *A Strategy for Improving Mitigation Policies and Practices of the Department of the Interior* (DOI 2014), including but not limited to:
    - Compensatory mitigation.

- Coordination with other agencies.
- Measures to monitor and evaluate the progress of long-term mitigation.
- Geospatial information systems developed and maintained for use in identifying existing and potential conservation strategies and development opportunities.

IV.8.3.1.2 Impacts of Ecological and Cultural Conservation and Recreation Designations

The No Action Alternative has no new conservation designations, but even without approval of an alternative, there would be continued protection of existing Legislatively and Legally Protected Areas (LLPAs) such as wilderness areas. In addition, under the No Action Alternative, renewable energy projects would continue to be evaluated and approved with project-specific mitigation requirements.

Currently, approximately 23% of the LUPA Decision Area is within existing BLM protected lands or BLM land designations (Appendix R2.8, Table R2.8-4). Under the No Action Alternative, approximately 62,487 cultural resources would be located in BLM conservation designations, or 1.1% of the total number (583,329) of cultural resources estimated to be on BLM lands within the DRECP area (Appendix R2.8, Table R2.8-4).Renewable energy development in these land designations, and any resultant impacts to cultural resources, would be reviewed on a project-by-project basis. If individual projects approved under the No Action Alternative resulted in the establishment of new conservation lands, cultural resources in those areas likely would be protected from disturbance. Under the No Action Alternative, the BLM would not establish management corridors for National Historic Trails. The routes of these trails as they cross the LUPA Decision Area are illustrated in Figure IV.8-2.

Table R2.8-4, Impacts to Existing BLM Land Use Plans, in Appendix R2, presents the estimated number of archaeological and built-environment resources within existing ACECs and SRMAs. The model shows 51,332 resources within existing SRMAs and 75,701 resources within existing ACECs. Existing ACECs and wildlife allocations would continue to protect all types of cultural resources because of their disturbance limitations.

IV.8.3.1.3 Impacts of Transmission Outside the DRECP Area

The application of mitigation measures developed in consultation under Section 106 of the NHPA would avoid, reduce, or mitigate potentially adverse impacts of transmission development on important cultural resources. Section 106 consultations between BLM, SHPOs, appropriate tribes, and other consulting parties would be required. Ongoing tribal consultation, in accordance with NHPA, would help determine areas of sensitivity, appropriate survey and mitigation needs, and other issues of concern such as access rights or disruption of cultural practices.

Impact CR-1: Effect on historic period built-environment resources.

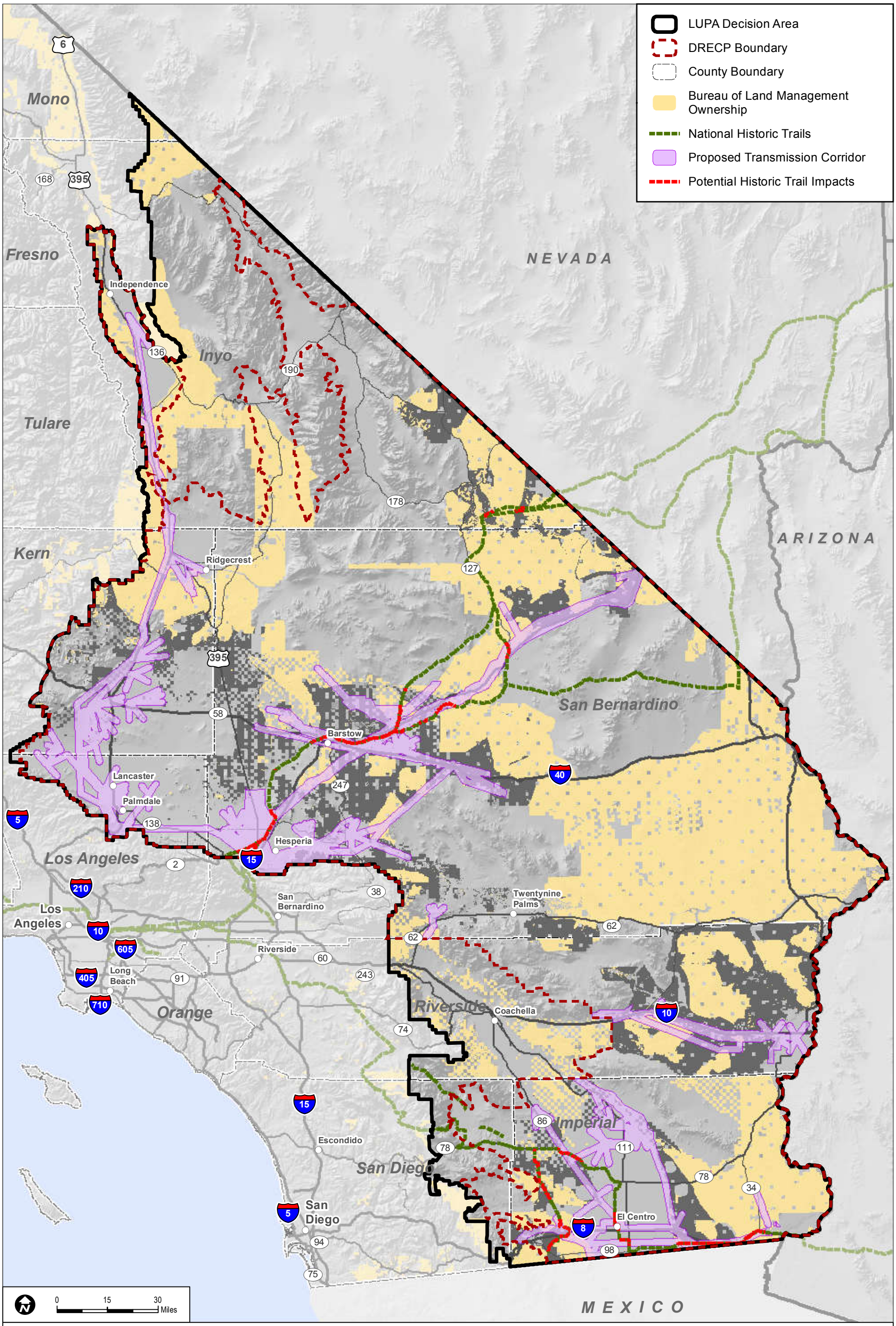
Damage or alteration of historic period built-environment resources could result from all phases of transmission line development outside the DRECP area. Ground disturbance and site characterization activities would cause the most impacts to buried historical archaeological sites. Geotechnical boring and drilling vibrations could damage the structural integrity of built-environment resources. Construction vehicles and the generation of fugitive dust would temporarily impact the visual integrity of historic period built-environment resources. Long-term impacts would result from the presence of transmission infrastructure and other linear facilities. Increased pedestrian and vehicular access to historical archaeological sites could lead to artifact trampling and looting.

Impact CR-2: Effect on prehistoric and historic period archaeological resources.

Damage or alteration of prehistoric and historic period archaeological resources could result from all phases of transmission line development outside the DRECP area. Ground disturbance and site characterization activities would cause the most impacts to buried prehistoric archaeological sites. Geotechnical boring and drilling vibrations could damage rock art sites and the integrity of the vertical location of intact subsurface archaeological deposits. Access roads constructed on a bajada (slope) or pediment landscape perpendicular to braided drainage networks could by design or natural causes result in the formation of deep-cut drainages that could expose and carry downstream cultural resources and modify the landscape and the distribution of vegetation. Construction vehicles and the generation of fugitive dust would temporarily impact the visual integrity of prehistoric and historic period archaeological resources such as trails, hunting blinds, or rock art sites. Long-term impacts would result from the presence of transmission infrastructure and other linear facilities. Increased pedestrian and vehicular access to prehistoric archaeological sites could lead to artifact trampling and looting, and ongoing use of roads for maintenance and by the public could generate fugitive dust that over time would adversely affect petroglyphs and pictographs.

Impact CR-3: Disturb human remains, funerary objects, sacred objects, and items of cultural patrimony.

Disturbance of human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony could result from construction-related ground-disturbance activities during transmission line development outside the DRECP area. Ground-disturbance activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and other cultural items, which are typically unmarked.



Sources: ESRI (2014); BLM (2015); RECON (2015)

FIGURE IV.8-2

National Historic Trails within the No Action Alternative

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-2.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

Impact CR-4: Effect on Cultural Landscapes.

Site Characterization. Damage or alteration of cultural landscapes could result from ground-disturbing activities and site characterization activities such as geotechnical borings, installation of meteorological stations, and establishment of temporary access roads for borings or meteorological stations.

Construction and Decommissioning. Damage or alteration of cultural landscapes could result from ground-disturbing activities such as the construction of staging areas and access roads, grading and vegetation clearing, and foundation excavations. Site decommissioning would have the fewest impacts if ground disturbance is confined to the original project area footprint. Construction vehicles and increased dust generated during ground disturbances could temporarily impact the visual setting of the cultural landscapes. Long-term impacts to the visual setting of cultural landscapes could occur from permanent project structures. Visual impacts to cultural landscapes would mostly be removed after decommissioning, as long as the site was properly restored to its preconstruction state.

Operations and Maintenance. Ground disturbance would be limited to clearing vegetation, and cleaning, maintaining, and repairing roads and facilities. Damage or alteration of cultural landscapes could occur if these ground-disturbing activities take place in areas that were not properly surveyed for cultural resources before construction. Soil erosion from water used to clean roads and facilities could impact the visual setting of cultural landscapes. Long-term visual and sensory impacts to cultural landscapes could therefore result from renewable energy projects and their associated land disturbances and ancillary facilities.

IV.8.3.2 Preferred Alternative

IV.8.3.2.1 Impacts of Renewable Energy and Transmission

Renewable energy development activities covered by the Proposed LUPA would be concentrated in DFAs on BLM-administered lands. Under the Preferred Alternative, an estimated 6,587 archaeological and built-environment resources would occur within DFAs (see Appendix R2.8, Table R2.8-5). This represents approximately 1.1% of the estimated 580,491 archaeological and built-environment resources within BLM-managed lands in the DRECP area under the Preferred Alternative. The density of these resources by DRECP ecoregion subarea is shown in Figure IV.8-3. The number of cultural resources impacted by technology type is shown in Table R2.8-5. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document.

Impact CR-1: Effect on historic period built-environment resources.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Effect on prehistoric and historic period archaeological resources.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Disturb human remains, funerary objects, sacred objects, and items of cultural patrimony.

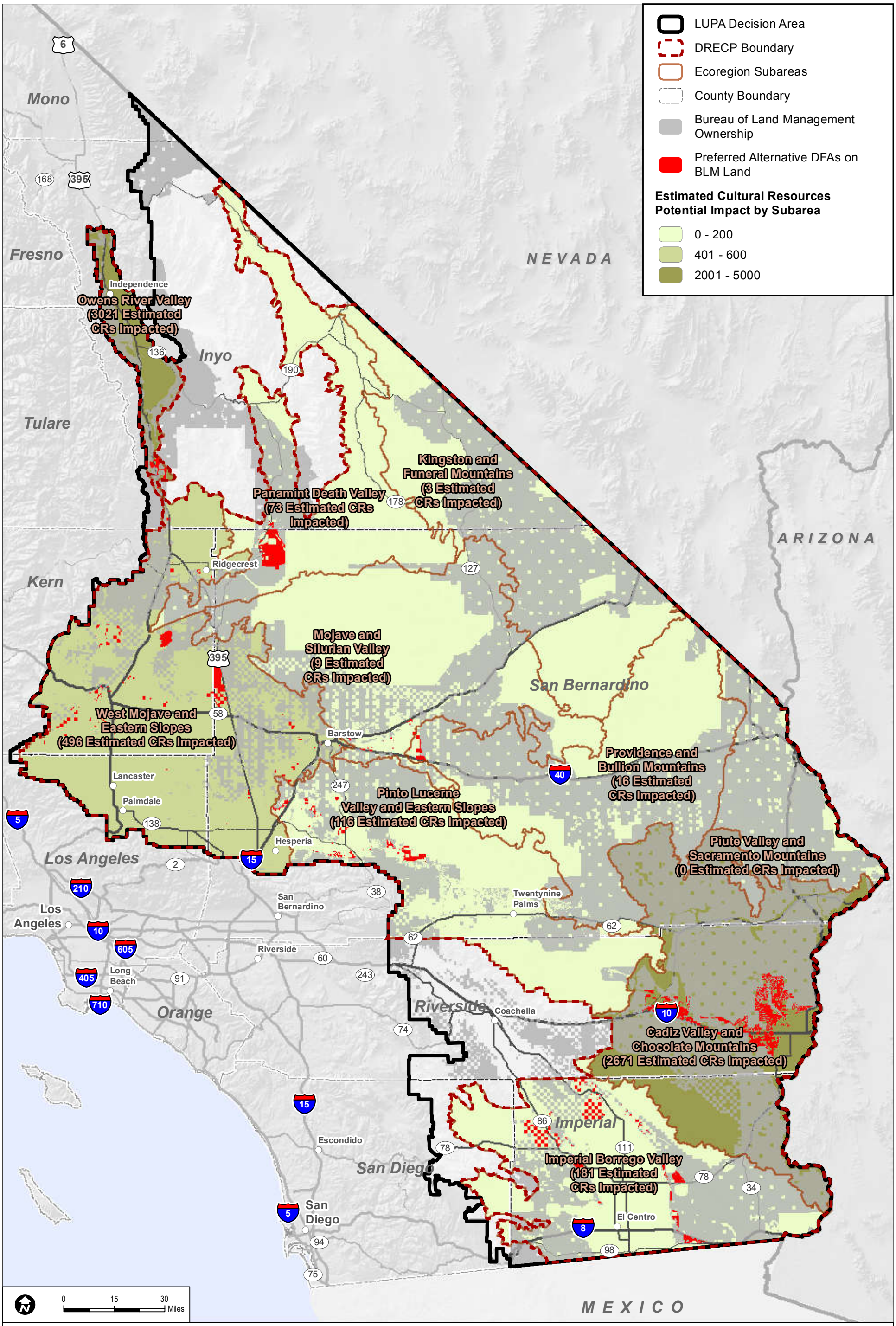
As described in more detail in Section IV.8.2, disturbance of human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony could result from construction-related ground-disturbance activities. Ground-disturbance activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of these types of cultural items, which are typically unmarked.

Impact CR-4: Effect on Cultural Landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.

Impacts in Variance Process Lands

Variance Process Lands represent the BLM Solar PEIS Variance Lands as screened for the LUPA and EIS, based upon BLM screening criteria. Development of renewable energy on Variance Process Lands would follow the variance process described in Section B.5 of Appendix B of the Solar PEIS Record of Decision (ROD). The process includes public outreach, interagency coordination, and consideration of environmental factors prior to the NEPA process. These lands would be subject to the DRECP Proposed LUPA Programmatic Agreement (PA). Variance Process Lands would not require a BLM LUPA so the environmental review process would be somewhat simpler than if the location were left undesignated (for further information refer to Section II.3.1, Overview of the Preferred Alternative).



Sources: ESRI (2014); BLM (2015); RECON (2015)

FIGURE IV.8-3

Estimated Number of Cultural Resources within DFAs by DRECP Ecoregion Subarea – Preferred Alternative

DRECP Proposed LUPA and Final EIS

October 2015

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-3.mxd 9/21/2015

INTENTIONALLY LEFT BLANK

Under the Preferred Alternative, there would be 40,118 acres of Variance Process Lands (Appendix R2.8, Table R2.8-6). An estimated 1,025 archaeological and built-environment resources are present on Variance Process Lands in this alternative. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document.

Impact Reduction Strategies

The implementation of the Proposed LUPA under the Preferred Alternative would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the LUPA would be lessened in several ways. First, the LUPA incorporates CMAs (listed below), including specific biological conservation designations and LUPA components. Also, the implementation of a Programmatic Agreement (PA) between BLM, the Advisory Council for Historic Preservation (ACHP), and the California State Historic Preservation Officer (SHPO) and all existing laws, orders, regulations and standards would reduce the impacts of project development. The most recent version of the PA is available on line at www.drecp.org.

Although land would be conserved under the Preferred Alternative, and some of these conserved lands would contain known cultural resources, there would still be damage or alteration to as-yet-unknown cultural resources. Because the traditional tribal worldview typically values cultural and spiritual resources holistically, the conservation of some cultural resources would not mitigate the damage or alteration of other cultural resources.

Design Features of the Solar PEIS

The design features of the Solar PEIS for cultural resources would be the same under all alternatives. These design features are as described for the No Action Alternative in Section IV.8.3.1.1. The DRECP LUPA PA would replace the Solar PEIS PA for renewable energy projects within the LUPA Decision Area (see Appendix BB).

Conservation and Management Actions

The conservation strategy for the Preferred Alternative (presented in Volume II, Section II.3.4) defines specific actions that would reduce the impacts of this alternative. Cultural resources on BLM land are managed in compliance with several federal laws. Cultural resources are administered via the multiple use mandate of the Federal Land Policy and Management Act of 1976 (FLPMA) in these categories: scientific use, conservation, traditional use, public use, or experimental use. To balance this multiple use mandate with the various compliance requirements, BLM may impose safeguards against incompatible

land and resource uses through withdrawals, stipulations on leases and permits, design requirements, and similar measures. These measures are developed and recommended by an appropriately staffed interdisciplinary team in accordance with policies described in the BLM Manual, Sections 8100 through 8170, and are consistent with the statewide protocol with the California SHPO and other guidelines from the SHPO. This section provides the proposed general goals, objectives, and action items for the Preferred Alternative to manage cultural resources within BLM jurisdiction in the DRECP area consistent with these various requirements. Some individual units (SRMA, ERMA, ACEC, National Conservation Lands) also have additional specific or more restrictive cultural resource rules described in those sections.

In the land use planning process, after establishing desired outcomes, BLM identifies allowable uses and management actions anticipated to achieve the goals and objectives. Allowable uses are uses identified as either allowable restricted or prohibited on public lands. Land use plans also identify lands where specific uses are excluded to protect resource values. Certain lands may be open or closed to specific uses based on legislative, regulatory, or policy requirements or criteria to protect sensitive resource values. The BLM may also establish criteria in the land use plan to guide identification of site-specific use levels for activities during plan implementation.

CMAs are not mitigation measures. However, many CMAs would help reduce impacts to cultural resources; they are presented below.

LUPA-Wide CMAs

LUPA-wide CMAs are considered to be "umbrella actions" or standard practices for ensuring appropriate biological conservation and management through implementation of avoidance and minimization for activities, as described previously. These LUPA CMAs would be required for all Covered Activities, as specified in individual CMAs, throughout the entire LUPA Decision Area. These LUPA Plan–wide CMAs would therefore provide a consistent level of biological management and conservation throughout the LUPA Decision Area.

LUPA-CUL-1: Continue working with the California Office of Historic Preservation (OHP) to develop and implement a program for record keeping and tracking agency actions that meet the needs of BLM and OHP organizations, pursuant to existing state and federal agreements and regulation (BLM State Protocol Agreement; BLM National Programmatic Agreement).

LUPA-CUL-2: Using relevant archaeological and environmental data, identify priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources and other considerations.

LUPA-CUL-3: Identify places of traditional cultural and religious importance to federally recognized tribes and maintain access to these locations for traditional use and maintain confidentiality of information and locational data.

LUPA-CUL-4: Design activities to minimize impacts on cultural resources including places of traditional cultural and religious importance to federally recognized tribes.

LUPA-CUL-5: Develop interpretive material to correspond with recreational uses to educate the public about protecting cultural resources and avoiding disturbance of archaeological sites.

LUPA-CUL-6: Develop partnerships to assist in the training of groups and individuals to participate in site stewardship programs.

LUPA-CUL-7: Coordinate with visual resources staff to ensure VRM Classes consider cultural resources and tribal consultation to include landmarks of cultural significance to Native Americans (TCPs, trails, etc.).

LUPA-CUL-8: Conduct regular contact and consultation with federally recognized Tribes and individuals, consistent with statute, regulation and policy.

LUPA-CUL-9: Promote desert vegetation communities by compensatory mitigation, off-site mitigation, and other means for Native American vegetation collection.

LUPA-CUL-10: Promote and protect desert fan palm oasis communities by compensatory mitigation, off-site mitigation, and other means for Native American cultural values.

LUPA-CUL-11: Promote and protect desert microphyll woodland communities by compensatory mitigation, off-site mitigation, and other means for Native American cultural values.

Other LUPA Wide CMAs

- **Biological Resources.** CMAs developed for biological resources that could reduce impacts to cultural resources from soil erosion (LUPA-BIO-8, LUPA-BIO-9, LUPA-BIO-15), project runoff, oil or other contaminant spill (LUPA-BIO-9), and the introduction of invasive species (LUPA-BIO-10 and LUPA-BIO-11) during restoration and revegetation. The CMAs would apply to all action alternatives (Preferred, Alternatives 1 through 4).
- **Air Resources.** Implementation of CMAs LUPA-AIR-2, LUPA-AIR-4, and LUPA-AIR-5 could reduce temporary impacts to the visual setting of cultural resources from fugitive dust by requiring that air quality standards for fugitive dust exceed local standards and apply 7 days a week. In addition, these CMAs would require development of a fugitive dust control plan (see Volume II, Section II.3.4). Dust mitigation activities can, however, have adverse impacts on cultural resources such as archaeological sites.

- **Comprehensive Trails and Travel Management.** Implementation of CMAs LUPA-CTTM-1 through LUPA-CTTM-7 relate to maintaining and managing adequate roads and trails could reduce impacts to trails and trail segments important to Native Americans by prohibiting large-scale disturbances within 0.5 mile of the centerline of Tier 2 roads/primitive roads and 300 feet from the centerline of Tier 3 primitive roads/trails. In addition, this would require the management of road, primitive road, and trail access to and within SRMAs, Extensive Recreation Management Areas, Off-Highway Vehicle Open Areas, and Tier 1, 2, and 3 roads.
- **Visual Resources.** Implementation of CMAs LUPA-VRM-1, LUPA-VRM-2, and LUPA-VRM-3 would reduce impacts to the visual setting of resources of Native American concern, including traditional cultural properties and sacred sites, landscapes, and archaeological resources, by ensuring that (1) development within each VRM Class polygon meets the VRM objectives as measured through a visual contrast rating process and (2) transmission facilities are designed to create the least amount of visual contrast. Best management practices (BMPs) for reducing visual impacts may be found in Chapter IV.20, Visual Resources. The BLM has created guidance that identifies 122 BMPs that can be used to avoid or reduce potential visual impacts associated with the siting, design, construction, operation, and decommissioning of utility-scale renewable energy generation facilities, including wind, solar, and geothermal facilities. These may be found in *Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM Administered Lands* (USDOI 2013).
- **Soil and Water.** Implementation of CMA LUPA-SW-9 would reduce the disturbance of desert pavement by requiring that the extent of desert pavement within the proposed boundary of an activity be mapped if it is anticipated that the activity may create erosional or ecologic impacts. Mapping will use the best available standards. Disturbance of desert pavement within the boundary of an activity shall be limited to the extent possible. If disturbance from an activity is likely to exceed 10% of the desert pavement mapped within the activity boundary, BLM will determine whether the erosional and ecologic impacts of exceeding the 10% cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement disturbance. This would protect surface and subsurface cultural resources in desert pavement areas as well as help identify resources (such as geoglyphs and sleeping circles) that are modifications to the desert pavement.

Ecological and Cultural Conservation

No specific cultural resources or tribal interest CMAs were established for ecological and cultural conservation. However, Biological Resources CMAs provide protections for dune

environments, plant species, and wildlife species that likely will provide some protection for Native American elements.

NLCS

Although Public Law 111-11 provides for lands within the CDCA to become components of National Conservation Lands, it does not include or define a process for developing specific management direction to conserve, protect, and restore resource values on identified conservation lands. In addition to the identifications of National Conservation Lands, each alternative of the Proposed LUPA provides management direction to meet the objectives of Public Law 111-11. This management direction has been developed at two levels: DRECP area-wide and site or zone specific. The CMAs in this section apply to all National Conservation Lands identified under P.L. 111-11 in the CDCA. Site-specific management is outlined in Special Unit Management Plans in Appendix L.

All LUPA-wide and Ecological and Cultural Conservation Area (CONS) CMAs also apply to National Conservation Lands:

NLCS-CUL-1: Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800. Resolution of adverse effects will in part be addressed via alternative mitigation that includes regional synthesis and interpretation of existing archaeological data in addition to mitigation measures determined through the Section 106 consultation process.

Other NLCS CMAs

National Scenic and Historic Trails

National Historic Trails are considered to be cultural resources. Because they are unique in their scope, legal status, and management, CMAs have been developed specifically dealing with National Scenic and Historic Trails:

NLCS-NSHT-1: Management of National Trails - Manage National Trails as components of the BLM's NLCS, as per PL 111-11. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations will apply.

NLCS-NSHT-2: Management Corridor (see also maps): Establish a National Trail Management Corridor, on BLM land, within the larger NCL units, as appropriate, with a width generally 2 miles from the centerline of the trail. Where the Trail Management Corridor overlap other National Conservation Lands, the more protective CMAs or land use allocations will apply.

NLCS-NSHT-3: Site Authorization – NSHT Management Corridors would be right-of-way avoidance areas for land use authorizations. Sites authorizations would require mitigation/compensation resulting in net benefit to the NSHT.

NLCS-NSHT-4: Linear Rights-of-Way – Generally, NSHT Management Corridors would be avoidance areas for linear rights-of-way, except in designated transmission corridors, which are available for linear rights-of-way. Cultural landscapes, high potential historic sites, and high potential route segments identified along historic trails corridors would be excluded from transmission, except in designated transmission corridors. High potential historic sites and route segments are defined as portions of the route or sites associated with it that provide opportunity to interpret or experience the historic significance of the trail during the period of its major use. For all linear rights-of-way affecting trail management corridors, the BLM will complete an analysis showing that the development does not substantially interfere with the nature and purposes of the trail, and that mitigation results in a net benefit to the trail.

NLCS-NSHT-5: Renewable Energy Rights-of-Way – Renewable energy activities would not be allowed within NSHT Management Corridors, except in approved DFAs. Where development affects trail management corridors, the BLM will complete an analysis to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.

NLCS-NSHT-6: All lands within National Conservation Lands would be identified for retention. If the BLM determines that disposal through exchange would result in a net benefit to the values of the National Conservation Lands, it may consider that exchange through a land use plan amendment.

NLCS-NSHT-7: Locatable minerals – For the purposes of locatable minerals, NSHT Management Corridors would be treated as "controlled" or "limited" use areas in the CDCA, requiring a Plan of Operations for greater than casual use under 43 CFR 3809.11.

NLCS-NSHT-8: Saleable minerals – NSHT Management Corridors would be available for saleable mineral development if it does not substantially interfere with nature and purpose of NSHT, and would require mitigation/compensation must result in net benefit to NSHT values.

NLCS-NSHT-9: Leasable minerals - NSHT Management Corridors would be available for leasing with a no surface occupancy stipulation. Surface coal mining would not be allowed within the NSHT Management Corridors.

NLSC-NSHT-10: Recreation and Visitor Services - Commercial and competitive Special Recreation is a discretionary action and would be considered on a case-by-case basis for activities consistent with the NSHT values.

NLSC-NSHT-11: Cultural Resources - Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 CFR Part 800.

NLSC-NSHT-12: Cultural Resources - All high potential NHT segments, defined as segments of a trail that afford an opportunity to vicariously share the experience of the original users of a historic route, will be assumed to contain remnants, artifacts and other properties eligible for the National Register of Historic Places, pending evaluation.

NLSC-NSHT-13: Visual Resources Management - All NSHT Management Corridors will be designated as VRM Class II, except within approved transmission corridors (VRM Class III) and DFAs (VRM Class IV). However, state of the art VRM BMPs for renewable energy will be employed commensurate with the protection of nationally significant scenic resources and cultural landscapes to minimize the level of intrusion and protect trail settings.

NLSC-NSHT-14: Mitigation Requirements - If a segment of a National Trail or proposed NHT traverses a DFA, it will be subject to mitigation for impacts to trail features, including, but not limited to, and not in priority order: avoidance, the cost of trail relocation, on-site mitigation and off-site mitigation. Compensation can include acquisition or restoration of corridor features and landscapes will be at a minimum of 2:1, and must result in a net benefit to the overall trail corridor. Development of high potential route segments, defined as segments of a trail that afford an opportunity to vicariously share the experience of the original users of a historic route, must not substantially interfere with the nature and purposes of the National Trail. Note that relocating a historic trail may mitigate impacts for recreational purposes but would still be considered an adverse effect to the trail as a historic property.

Disturbance Caps

NLCS-DIST-9: Historic Route 66 – Authorized maintenance and management activities for historic Route 66 will be prioritized within the ground disturbance methodology and approvals in the applicable units.

ACECs

The CMAs in this section apply to all ACECs within the LUPA Decision Area. All LUPA-wide and Ecological and Cultural Conservation Area (CONS) CMAs also apply to ACECs. Required

elements of the ACECs (Name, Location, and Size; Description of Value, Resource System, or Hazard; and Provisions for Special Management Attention) and maps of each unit are included in the Special Unit Management Plans in Appendix L:

ACEC-CUL-1: Survey, identify and record new cultural resources within ACEC boundaries prioritizing ACECs where relevant and important criteria include cultural resources.

ACEC-CUL-2: Update records for existing cultural resources within ACECs, prioritizing ACECs where the relevant and important criteria include cultural resources.

ACEC-CUL-3: Develop baseline assessment of specific natural and man-made threats to cultural resources in ACECs (i.e., erosion, looting and vandalism, grazing, OHV), prioritizing ACECs where the relevant and important criteria include cultural resources.

ACEC-CUL-4: Provide on-going monitoring for cultural resources based on the threat assessment, prioritizing ACECs where the relevant and important criteria include cultural resources.

ACEC-CUL-5: Identify, develop or incorporate standard protection measures and best management practices to address threats.

ACEC-CUL-6: Where specific threats are identified, implement protection measures consistent with agency Section 106 responsibilities.

Wildlife Allocations

Although there are no specific cultural resource or tribal interest CMAs for wildlife allocations, the Lands and Realty CMAs developed for these allocations would provide some measure of protection for cultural resources in the Native American Element by restricting renewable energy activities and development within these areas. Additionally, by protecting wildlife and plant habitat, it protects resources that are important to tribes.

SRMAs

No specific cultural resources or tribal interest CMAs were established for SRMAs. However, Comprehensive Trails and Travel Management and Lands and Realty CMAs limit renewable energy activities within SRMAs, likely providing some protection for cultural resources and the Native American Element.

ERMAs

No specific cultural resources or tribal interest CMAs were established for ERMAs.

DFAs and Variance Process Lands

The following CMAs are to be implemented in the DFAs, Variance Process Lands, or both (depending on the prefixes used), in addition to LUPA Decision Area CMAs.

The BLM developed and maintains a geodatabase for cultural resources and cultural resources investigations in a Geographic Information Systems. The geodatabase is regularly updated with newly recorded and re-recorded resource and investigation data. However, while the geodatabase includes location information (feature classes or shapefiles), the associated information about each resource or investigation (attribute data) is limited or inconsistent. As it exists now, the geodatabase cannot be used for predictive analyses like those recommended in *A Strategy for Improving Mitigation Policies and Practices of the Department of the Interior* (USDOI 2014). However, with some updates, the geodatabase would be a powerful tool for identifying potential conservation priorities as well as development opportunities. Many of the CMAs below are intended to facilitate the update of BLM's geodatabase, and require its use when the updates are complete.

The following CMAs are for renewable energy and transmission land use authorizations. All other activities will be subject to the Section 106 process:

DFA-VPL-CUL-1: For Renewable Energy Activities and Transmission, require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism:

- All appropriate costs associated with the BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity;
- All appropriate costs associated with preliminary sensitivity analysis;
- All appropriate costs associated with the Section 106 process including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process.
- All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results.

DFA-VPL-CUL-2: For renewable energy activities and transmission, a management fee, defined at a per acre rate and annual escalation provision for the life of the grant, will paid to the BLM as partial mitigation for the cumulative effects on cultural resources across the LUPA Decision Area and may be used to develop regional research designs, a regional synthesis of existing data, and other forms of off-site and compensatory mitigation.

DFA-VPL-CUL-3: For renewable energy activities and transmission, the management fee rate will be determined through the programmatic Section 106 consultation process that will be completed as part of the LUPA.

DFA-VPL-CUL-4: For renewable energy activities and transmission, demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of specific footprints for further consideration.

DFA-VPL-CUL-5: For renewable energy activities and transmission, provide a statistically significant sample survey as part of the pre-application process, unless the BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.

DFA-VPL-CUL-6: For renewable energy activities and transmission, provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources by the BLM.

DFA-VPL-CUL-7: For renewable energy activities and transmission, complete the Section 106 Process as specified in 36 CFR Part 800, or via an alternate procedure, allowed for under 36 CFR Part 800.14 prior to issuing a ROD or ROW grant on any utility-scale renewable energy or transmission project. For utility-scale solar energy developments, the BLM may follow the Solar PA.

DFA-VPL-CUL-8: For renewable energy activities and transmission, the Ford Dry Lake Basin and surrounding shoreline up to the 380-foot contour comprises mitigation agreed upon earlier by the Genesis project owners, the BLM, the CEC, the Colorado River Indian Tribes, and the Ft. Mojave tribe as the proposed Ford Dry Lake National Register Archaeological District and may not be developed.

Undesignated

The cultural resources and tribal interests CMAs for Undesignated Lands are the same as the ones for the DFAs and Variance Process Lands previously listed.

Transmission

The cultural resources and tribal interests CMAs for Transmission are the same as the ones for the DFAs and Variance Process Lands previously listed.

Compensation

No specific cultural resources or tribal interest CMAs have been established for compensation.

IV.8.3.2.2 Impacts of Ecological and Cultural Conservation and Recreation Designations

Under the Preferred Alternative, cultural resources would be protected from extensive disturbance within new conservation designations. Proposed new ACEC and NLCS designations would protect cultural resources. This would occur partly because of disturbance caps designed to conserve and protect the resource values, and renewable energy development would be limited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under the Preferred Alternative, an estimated 224,673 resources (or 62% of all known archaeological and built-environment resources) would occur within conservation designations (see Appendix R2.8, Table R2.8-7). The majority of the estimated archaeological and built-environment resources (179,656) occur within NLCS lands. As illustrated in Figure IV.8-4, in the Preferred Alternative, the National Trail Management Corridor is 2 miles on either side of the trail's centerline. As a result, an estimated 28,355 cultural resources would be protected. The number of cultural resources preserved by conservation designation type is shown in Appendix R2.8, Table R2.8-8. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document. Due to their location within the conservation designations, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.2.3 Impacts of Transmission Outside the DRECP Area

The impacts of transmission on cultural resources outside the DRECP area would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.3.

IV.8.3.2.4 Comparison of Preferred Alternative with No Action Alternative

Cultural resources vary by alternative in three main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources conserved in conservation designations, and (3) the NHT corridor width and the number of resources

conserved within the corridor. Table IV.8-1 compares the Preferred Alternative with the No Action Alternative.

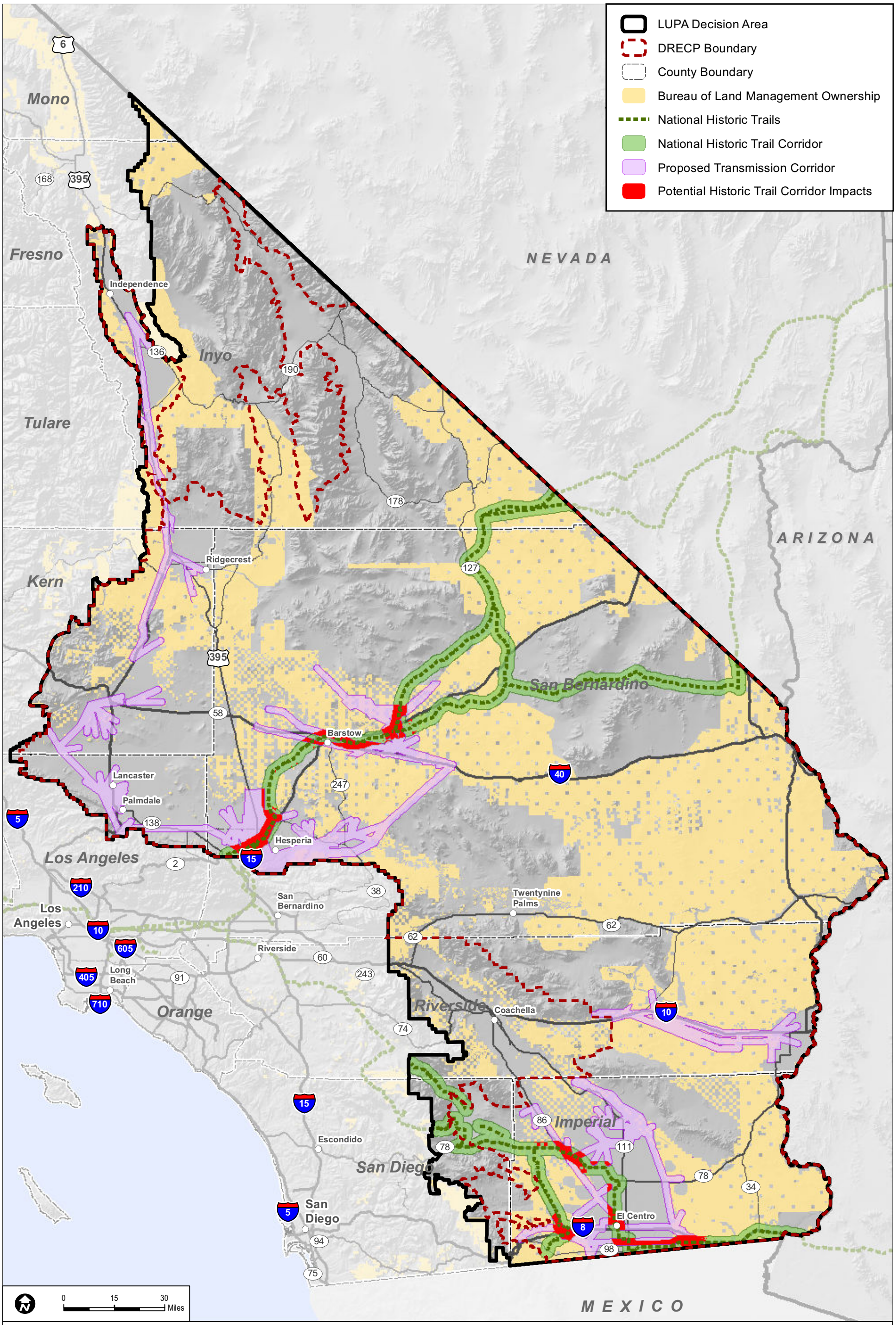
Table IV.8-1
Comparison of Preferred Alternative with the No Action Alternative

	Preferred Alternative	No Action
Number of resources in DFAs/ADAs	6,587	4,077
Number of resources in SRMA	59,773	51,332
Number of resources in NLCS	179,656	N/A
Number of resources in ACEC	126,755	75,701
Number of resources in Wildlife Allocation	733	N/A
Number of resources in LWCs	16,260	N/A
Number of resources in NHT Management Corridors	3,185	N/A
Total number of resources conserved in Conservation Designations or BLM protected lands	224,673	62,487
NHT corridor width	Approximately 2 miles on either side of centerline	None

Alternatives are distinguished by comparing the number of estimated cultural resources that would be conserved in the LUPA Decision Area (Tables R2.8-4 and R2.8-5) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development.

While the No Action Alternative has more acres of DFA, the Preferred Alternative includes more acres in the Owens River Valley that are very sensitive for cultural resources. Therefore, based on the data presented in Table IV.8-1, it appears that the Preferred Alternative would impact more cultural resources in the DFA footprints when compared to the No Action Alternative. However, significantly more resources would be conserved in conservation designations and in NHT corridors.

While the number of resources conserved vary by each type of BLM land designation, cultural resources CMAs apply to NLCS, ACECs, and Trail Management Corridors, and so the importance of those designations is emphasized here. Overall, a larger number of resources would be protected more effectively by the Preferred Alternative as compared with the No Action Alternative.



Sources: ESRI (2014); BLM (2015); RECON (2015)

FIGURE IV.8-4

National Historic Trails within the Preferred Alternative

INTENTIONALLY LEFT BLANK

Geographic Distinctions

As this is a programmatic analysis, no particular sensitive cultural resources have been identified in any specific location within the DRECP area. However, different ecoregion subareas have different estimated cultural resources densities and some location types are known to be sensitive for cultural resources.

Under the Preferred Alternative, the Silurian Valley, would be under a conservation designation. Under the No Action Alternative this location would be undesignated. In each alternative this location could either be developed or conserved; therefore, the Preferred Alternative has the potential to protect more cultural resources in this location than the No Action Alternative.

Under the Preferred Alternative and the No Action Alternative, the Hidden Hills area of Inyo County would be undesignated. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66 and a National Historic Trail. Under each alternative this location might either be conserved or developed; therefore, there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the Notch in the Park, the Area north of Tehachapi and the area east of Twentynine Palms would be Variance Process Lands. Under the No Action Alternative, these locations would be undesignated. In each alternative these locations could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the Owens Valley Dry Lake would be a conservation designation. Under the No Action Alternative, this location would be undesignated. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, the Preferred Alternative would protect more cultural resources in this location than the No Action Alternative.

Under the Preferred Alternative, Searles Lake between Ft. Irwin and China Lake would be a DFA. Under the No Action Alternative, this location would be undesignated. In each alternative this location could either be developed or conserved, so there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the area along U.S. 395 north of Edwards Air Force Base would be a DFA. Under the No Action Alternative, this location would be undesignated. In the Preferred Alternative this location would be open for development, while in the No

Action Alternative this location could either be developed or conserved, so the No Action Alternative is potentially more protective of cultural resources.

IV.8.3.3 Alternative 1

IV.8.3.3.1 Impacts of Renewable Energy and Transmission

Renewable energy development activities covered by the Proposed LUPA would be concentrated in DFAs. Under Alternative 1, an estimated 9,501 archaeological and built-environment resources would occur within DFAs (see Appendix R2.8, Table R2.8-9). The density of these resources by ecoregion subarea is shown in Figure IV.8-5. Approximately 1.6% of estimated archaeological and built-environment resources within the LUPA Decision Area in the DRECP area would occur within DFAs under Alternative 1. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document. Each impact is described below.

Impact CR-1: Effect on historic period built-environment resources.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Effect on prehistoric and historic period archaeological resources.

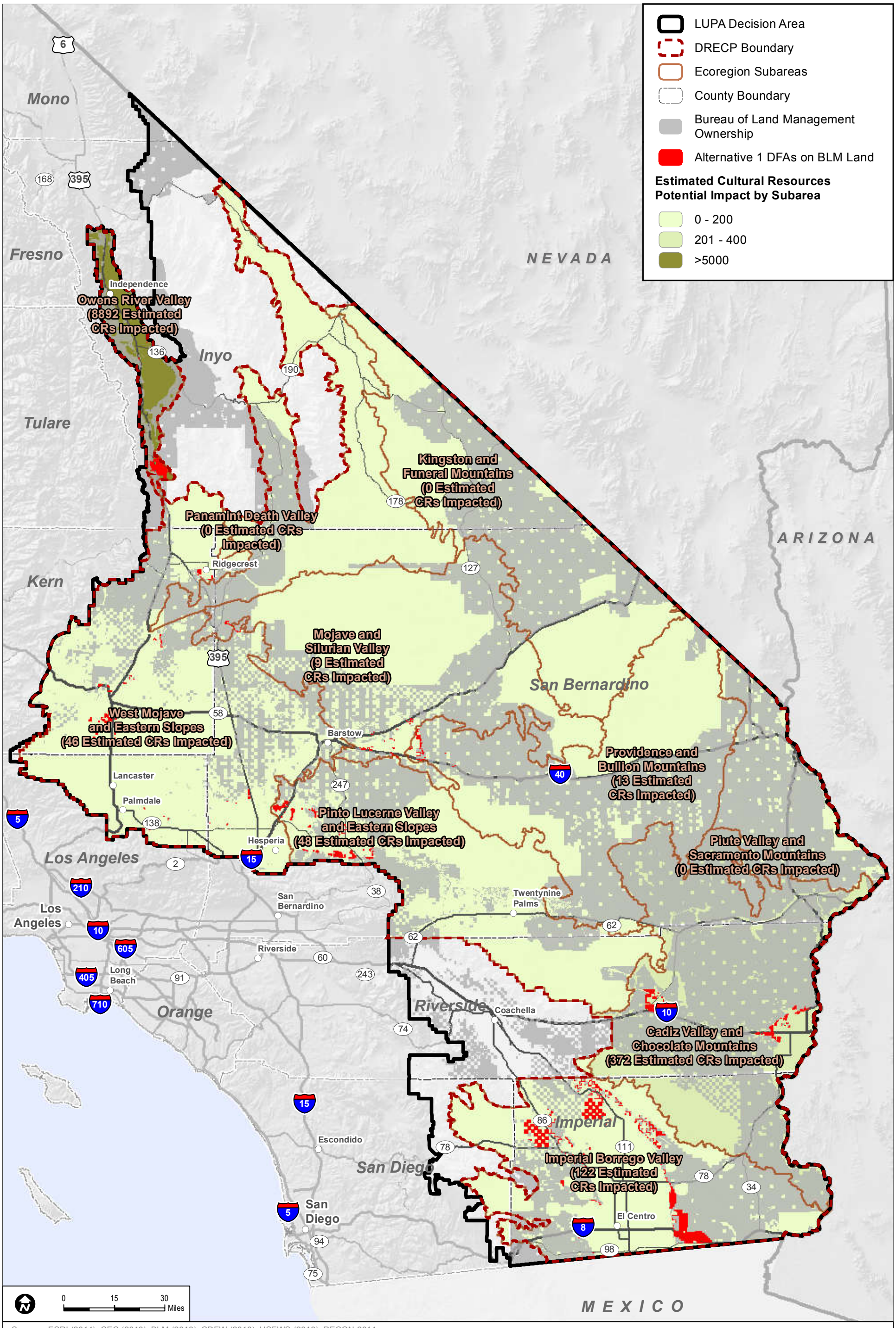
As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Disturb human remains, funerary objects, sacred objects, and items of cultural patrimony.

As described in more detail in Section IV.8.2, disturbance of human remains or cultural items could result from construction-related ground-disturbance activities. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and cultural items, which are typically unmarked.

Impact CR-4: Effect on Cultural Landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013); RECON 2014

FIGURE IV.8-5

Estimated Number of Cultural Resources within DFAs by DRECP Ecoregion Subarea – Alternative 1

DRECP Proposed LUPA and Final EIS

October 2015

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-5.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

Impacts on Variance Process Lands

Variance Process Lands refer to areas that would be open for solar, wind, and geothermal energy applications under the Proposed LUPA but need to follow a variance process before BLM would determine whether to continue with processing them. These lands would be subject to the DRECP LUPA PA. Development in any of the Variance Process Lands could adversely impact resources important to tribes and other communities.

Under Alternative 1 there would be 34,965 acres of Variance Process Lands (Appendix R2.8, Table R2.8-10). There are an estimated 4,908 archaeological and built-environment resources. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document.

Impact Reduction Strategies

The implementation of the Proposed LUPA would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the LUPA would be lessened in several ways. First, the LUPA incorporates CMAs for each alternative. Also, the implementation of a NHPA Section 106 PA with the ACHP and the California SHPO and existing laws, orders, regulations, and standards would reduce the impacts of project development (see Appendix BB).

Although land would be conserved under Alternative 1, and some of these conserved lands would contain known cultural resources, there would still be damage or alteration to as-yet-unknown cultural resources. Because the traditional tribal worldview typically values cultural and spiritual resources holistically, the conservation of some cultural resources would not mitigate the damage or alteration of other cultural resources in DFAs.

Design Features of the Solar PEIS

The design features of the Solar PEIS for cultural resources would be the same under all alternatives. These design features are as described for the No Action Alternative in Section IV.8.3.1.1. The DRECP LUPA PA would replace the Solar PEIS PA for renewable energy projects within the LUPA Decision Area (see Appendix BB).

Conservation and Management Actions

The conservation strategy for Alternative 1 (see Volume II, Section II.4.4) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes specific CMAs defined for the Preferred Alternative. The CMAs would be the same under all alternatives except for the following, associated with cultural resources.

NLCS

Management of National Conservation Lands

1. ***Planning Area–wide National Conservation Land Management Direction***

   Comprehensive Trails and Travel Management.

   - **Cultural Resources.** Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 Code of Federal Regulations (CFR) Part 800.

National Scenic and Historic Trails

1. ***Conservation and Management Actions for the Pacific Crest National Scenic Trail, and the Juan Bautista de Anza and Old Spanish National Historic Trails Management Corridors***

   - **Management Corridor Width (see maps).** Establish a National Trail Management Corridor, width generally 0.25 mile from centerline.
   - **Management of Trail Corridors.** Manage National Trails as components of the BLM's NLCS. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations will apply. Within these areas, the BLM will support the nature and purposes of the designated National Trails.
   - **Cultural Resources.** Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 CFR Part 800.

Mitigation Requirements

- If a segment of an NSHT or trail under study for possible designation traverses a DFA, it will be subject to mitigation for impacts to trail resources, qualities, values, and associated settings, and primary use or uses, including, but not limited to, and not in priority order: avoidance, the cost of trail relocation, on-site mitigation, and off-site mitigation. Compensation can include acquisition or restoration of corridor features and landscapes at a minimum of 2:1, and must result in a net benefit to the overall National Trail Management Corridor. Covered Activity development within high potential route segments must not substantially interfere with the nature and purposes of the National Trail.

IV.8.3.3.2 Impacts of Ecological and Cultural Conservation and Recreation Designations

Under Alternative 1, cultural resources would be protected from most new disturbances within new conservation designations. Proposed new ACEC and NLCS designations would protect cultural resources. This would occur partly as a result of disturbance caps in these areas designed to conserve and protect the resource values; renewable energy development would be limited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 1, an estimated 284,375 resources (or 49% of all archaeological and built-environment resources) would occur within conservation designations (see Appendix R2.8, Table R2.8-11). The majority of the estimated archaeological and built-environment resources (175,374) occur within ACEC lands. As illustrated in Figure IV.8-6, in Alternative 1 the National Trail Management Corridor is 0.25 mile on either side of the centerline. As a result, an estimated 2,015 cultural resources would be protected. The number of cultural resources preserved by conservation designation type is shown in Table R2.8-12. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document. Due to their location, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.3.3 Impacts of Transmission Outside the DRECP Area

The impacts of transmission outside the DRECP area on cultural resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.5.

IV.8.3.3.4 Comparison of Alternative 1 with Preferred Alternative

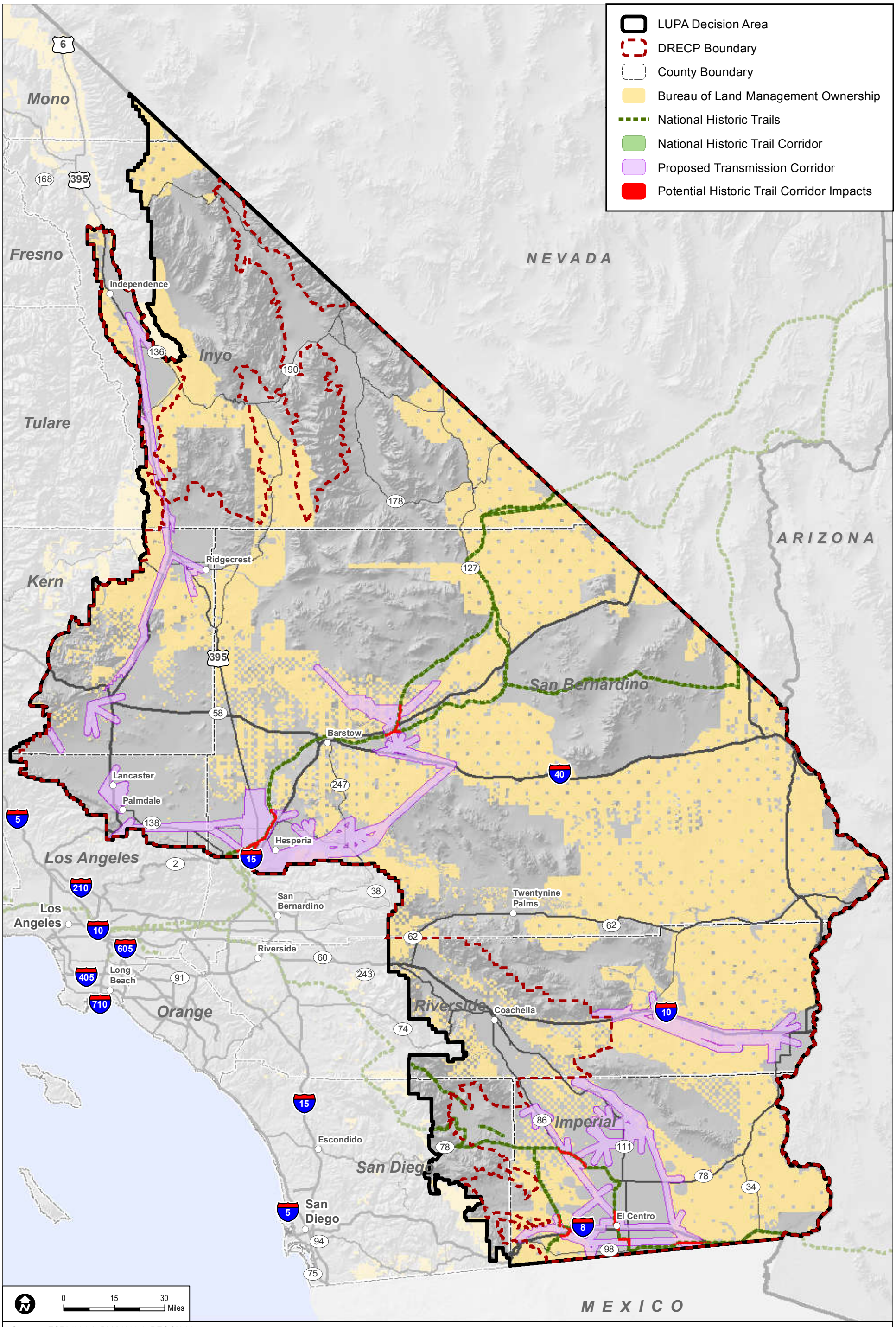
Cultural resources vary by alternative in three main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources conserved in conservation designations, and (3) the NHT corridor width and the number of resources conserved within the corridor. Table IV.8-2 compares the Preferred Alternative with Alternative 1.

Table IV.8-2
Comparison of Preferred Alternative with the Alternative 1

	Preferred Alternative	Alternative 1
Number of Resources in DFAs	6,587	9,501
Number of Resources in Variance Process Lands	1,025	4,908
Number of Resources in SRMA	59,773	68,356
Number of Resources in NLCS	179,656	19,315
Number of Resources in ACECs	126,755	175,374
Number of Resources in Wildlife Allocation	733	19,315
Number of Resources in LWCs	16,260	0
Number of Resources in NHT Management Corridors	3,185	2,015
Total number of Resources Conserved in Conservation Designations	224,673	221,980
NHT Corridor Width	2 miles on either side of centerline	¼ mile on either side of centerline

Alternatives are distinguished through the comparison of the number of estimated cultural resources that would be conserved in BLM land designations (Tables R2.8-8 and R2.8-12) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development (see Tables R2.8-5 and R2.8-9).

The Preferred Alternative would impact fewer cultural resources in the DFA footprints as compared to Alternative 1. In contrast, Alternative 1 would conserve more resources in the conservation designations but conserve fewer resources in the NHT corridors because the Preferred Alternative the corridor is 2 miles off the centerline of the trail rather 0.25 mile off centerline in Alternative 1. While the number of resources conserved by each type of conservation designation varies, cultural resources CMAs apply to NLCS, ACECs, and National Historic Trail Management Corridors and so the importance of those designations is emphasized here. Overall, a larger number of resources would be protected in these designations by the Preferred Alternative as compared to Alternative 1. Overall, with fewer cultural resources located in DFAs and more located in conservation designations, the Preferred Alternative is more protective to cultural resources than Alternative 1.



Sources: ESRI (2014); BLM (2015); RECON 2015

FIGURE IV.8-6

National Historic Trails within Alternative 1

DRECP Proposed LUPA and Final EIS

October 2015

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-6.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

Geographic Distinctions

Because this is a programmatic analysis, no particular sensitive cultural resources have been identified in any specific location within the DRECP area. However, different ecoregion subareas have different estimated cultural resources densities and some location types are known to be sensitive for cultural resources.

Under the both Preferred Alternative and Alternative 1, the Silurian Valley would be a conservation designation. Therefore, both alternatives would protect cultural resources in this location equally.

Under the Preferred Alternative, the Hidden Hills area would be undesignated. Under Alternative 1, this location would be in Variance Process Lands. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and a National Historic Trail. Under either the Preferred Alternative or Alternative 1, part of this location might be conserved or developed; therefore there is no difference between the alternatives.

Under the Preferred Alternative, the Notch in the Park, area north of Tehachapi, and area east of Twentynine Palms would be Variance Process Lands. Under Alternative 1, these locations would be undesignated. In each alternative these locations could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under both the Preferred Alternative and Alternative 1, the Owens Valley Dry Lake would be a conservation designation. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, both alternatives would protect cultural resources in this location equally.

Under the Preferred Alternative, Searles Lake between Ft. Irwin and China Lake would be a DFA. Under Alternative 1, this location would be undesignated. As a DFA, development is more likely, but could also occur as undesignated land. Therefore, there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the area along U.S. 395 north of Edwards Air Force Base would be a DFA. Under Alternative 1, this location would be a conservation designation. Therefore, Alternative 1 would protect more cultural resources in this location than the Preferred Alternative.

IV.8.3.4 Alternative 2

IV.8.3.4.1 Impacts of Renewable Energy and Transmission

Renewable energy development activities covered by the Proposed LUPA would be concentrated in DFAs. Under Alternative 2, an estimated 7,985 archaeological and built-environment resources would occur within DFAs (see Table R2.8-13 in Appendix R2.8). This would represent approximately 1.4% of estimated archaeological and built-environment resources within the LUPA Decision Area under Alternative 2. The density of these resources by ecoregion subarea is shown in Figure IV.8-7. The number of cultural resources impacted by technology type is shown in Table R2.8-13. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document. Each impact is described below.

Impact CR-1: Effect on historic period built-environment resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Effect on prehistoric and historic period archaeological resources.

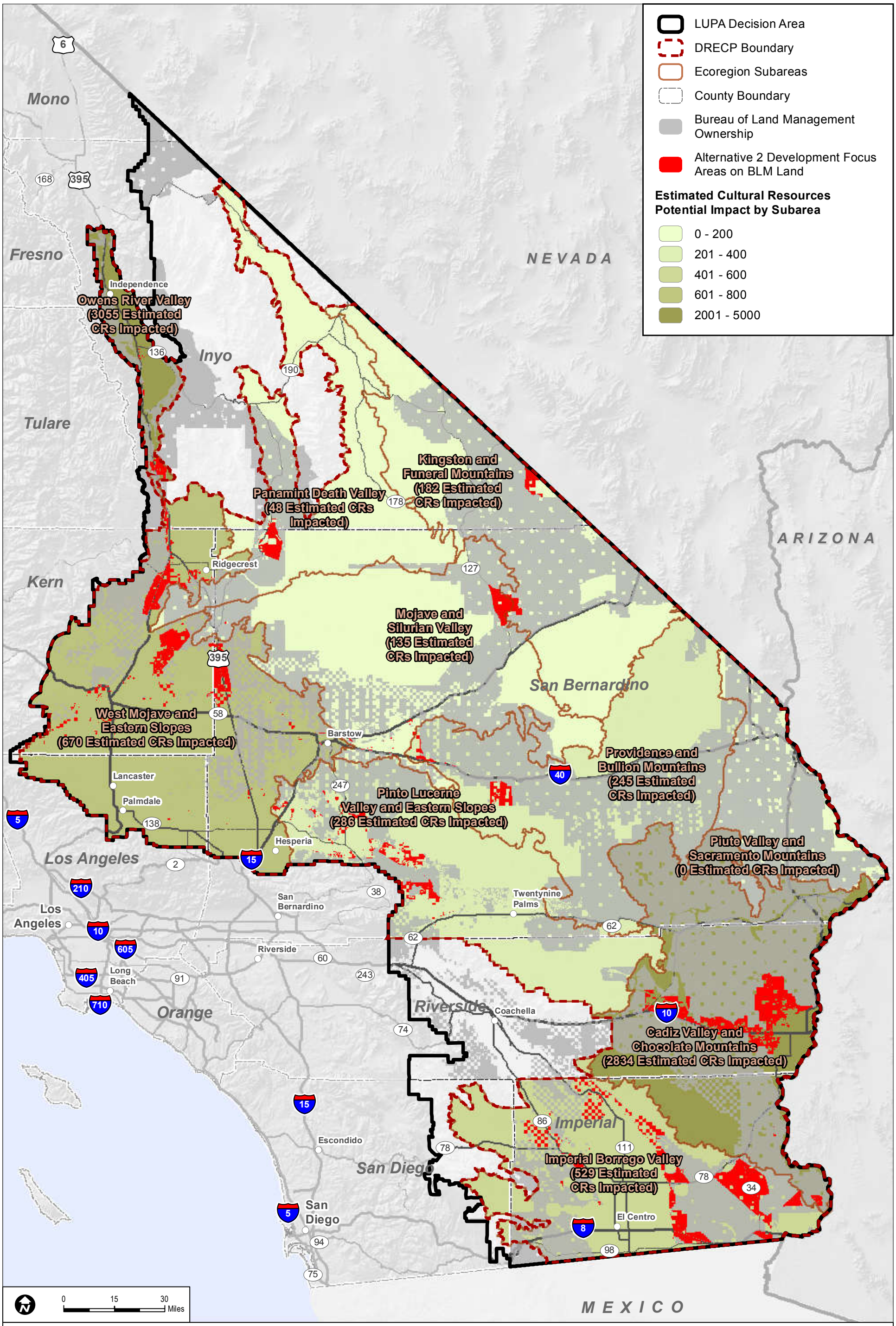
As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Disturb human remains, funerary objects, sacred objects, and items of cultural patrimony.

As described in Section IV.8.2, disturbance of human remains or cultural items could result from construction-related ground-disturbance activities. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and cultural items, which are typically unmarked.

Impact CR-4: Effect on Cultural Landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.



Sources: ESRI (2014); BLM (2015); RECON (2015)

FIGURE IV.8-7

Estimated Number of Cultural Resources within DFAs by DRECP Ecoregion Subarea – Alternative 2

DRECP Proposed LUPA and Final EIS

October 2015

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-7.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

Impacts in Variance Process Lands

Variance Process Lands refer to areas that would be open for solar, wind, and geothermal energy applications under the Proposed LUPA but need to follow a variance process before BLM would determine whether to continue with processing them. These lands would be subject to the DRECP LUPA PA. Development in any of the Variance Process Lands could adversely impact resources important to tribes and other communities.

Under Alternative 2 there would be 15,986 acres of Variance Process Lands (Table IV.1-2, Appendix R2.8 Table R2.8-14). An estimated 183 archaeological and built-environment resources are present. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document.

Design Features of the Solar PEIS

The design features of the Solar PEIS for cultural resources would be the same under all alternatives. These design features are as described for the No Action Alternative in Section IV.8.3.1.1. The DRECP LUPA PA would replace the Solar PEIS PA for renewable energy projects within the LUPA Decision Area . The most recent version of the PA is available on line at www.drecp.org.

Impact Reduction Strategies

The implementation of the Proposed LUPA would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the LUPA would be lessened in several ways. First, the LUPA incorporates CMAs for each alternative. Also, the implementation of a NHPA Section 106 PA with the ACHP and the California SHPO, and existing laws, orders, regulations, and standards would reduce the impacts of project development (see Appendix BB).

Conservation and Management Actions

The conservation strategy for Alternative 2 (see Volume II, Section II.5.4) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes specific CMAs, as defined for the Preferred Alternative. The CMAs would be the same under all alternatives, with the following exceptions for cultural resources.

NLCS

Management of National Conservation Lands

1. ***Planning Area–wide National Conservation Land Management Direction***

    - **Cultural Resources.** No allowable uses that result in adverse effects to historic properties as defined under Section 106 of the National Historic Preservation Act and the implementing regulations at 36 Code of Federal Regulations (CFR) Part 800 will be authorized.

Conservation and Management Actions for Pacific Crest National Scenic Trail, and Juan Bautista de Anza and Old Spanish National Historic Trails Management Corridors

- **Management Corridor Width.** Establish a National Trail Management Corridor, width generally 10 miles from centerline.
- **Management of Trail Corridors.** Manage National Trails as components of the BLM's NLCS. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations will apply. Within these areas, the BLM will support the nature and purposes of the designated National Trails.
- **Cultural Resources.** No allowable uses that result in adverse effects to historic properties as defined under Section 106 of National Historic Preservation Act and the implementing regulations at 36 CFR Part 800 will be authorized.
- **Mitigation Requirements.** If a segment of a National Scenic or Historic Trail or trail under study for possible designation traverses a DFA, it will be subject to mitigation for impacts to trail resources, qualities, values, and associated settings, and the primary use or uses, including, but not limited to, and not in priority order: avoidance, the cost of trail relocation, on-site mitigation, and off-site mitigation. Compensation can include acquisition or restoration of corridor features and landscapes will be at a minimum of 2:1, and must result in a net benefit to the overall national trail management corridor. Development of Covered Activities in high potential route segments must not substantially interfere with the nature and purposes of the National Trail.

IV.8.3.4.2 Impacts of Ecological and Cultural Conservation and Recreation Designations

Under Alternative 2, cultural resources would be protected from extensive new disturbance by establishing new conservation designations. Proposed new ACEC and NLCS designations would reduce impacts on cultural resources. This would occur partly as a result of disturbance caps

designed to conserve and protect the resource values, and renewable energy development would be limited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 2, an estimated 583,352 resources (39% of all estimated archaeological and built-environment resources) would occur within conservation designations (see Appendix R2.8, Table R2.8-15). The majority of the estimated archaeological and built-environment resources (224,810) occur within NLCS lands, with 40,802 on existing and proposed ACEC lands. As illustrated in Figure IV.8-8, in Alternative 2, the National Trail Management Corridor is 10 miles on either side of the centerline. As a result, an estimated 214,051 cultural resources would be protected. The number of cultural resources preserved by conservation designation type is shown in Table R2.8-15. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document. Due to their location within the conservation designations, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.4.3 Impacts of Transmission Outside the DRECP Area

The impacts of transmission outside the DRECP area on cultural resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.5.

IV.8.3.4.4 Comparison of Alternative 2 with Preferred Alternative

Cultural resources vary by alternative in three main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources conserved in conservation designations, and (3) the NHT corridor width and the number of resources conserved within the corridor. Table IV.8-3 compares the Preferred Alternative with Alternative 2.

Table IV.8-3
Comparison of Preferred Alternative with Alternative 2

	Preferred Alternative	Alternative 2
Number of Resources in DFAs	6,587	7,985
Number of Resources in Variance Process Lands	1,025	183
Number of Resources in SRMA	59,773	65,075
Number of Resources in NLCS	179,656	224,810

Table IV.8-3
Comparison of Preferred Alternative with Alternative 2

	Preferred Alternative	Alternative 2
Number of Resources in ACECs	126,755	40,802
Number of Resources in Wildlife Allocation	733	2
Number of Resources in LWCs	16,260	20,082
Number of Resources in Trail Management Corridors	3,185	214,051
Total number of Resources Conserved in Conservation Designations	224,673	227,005
NHT Corridor Width	2 miles on either side of centerline	10 miles on either side of centerline

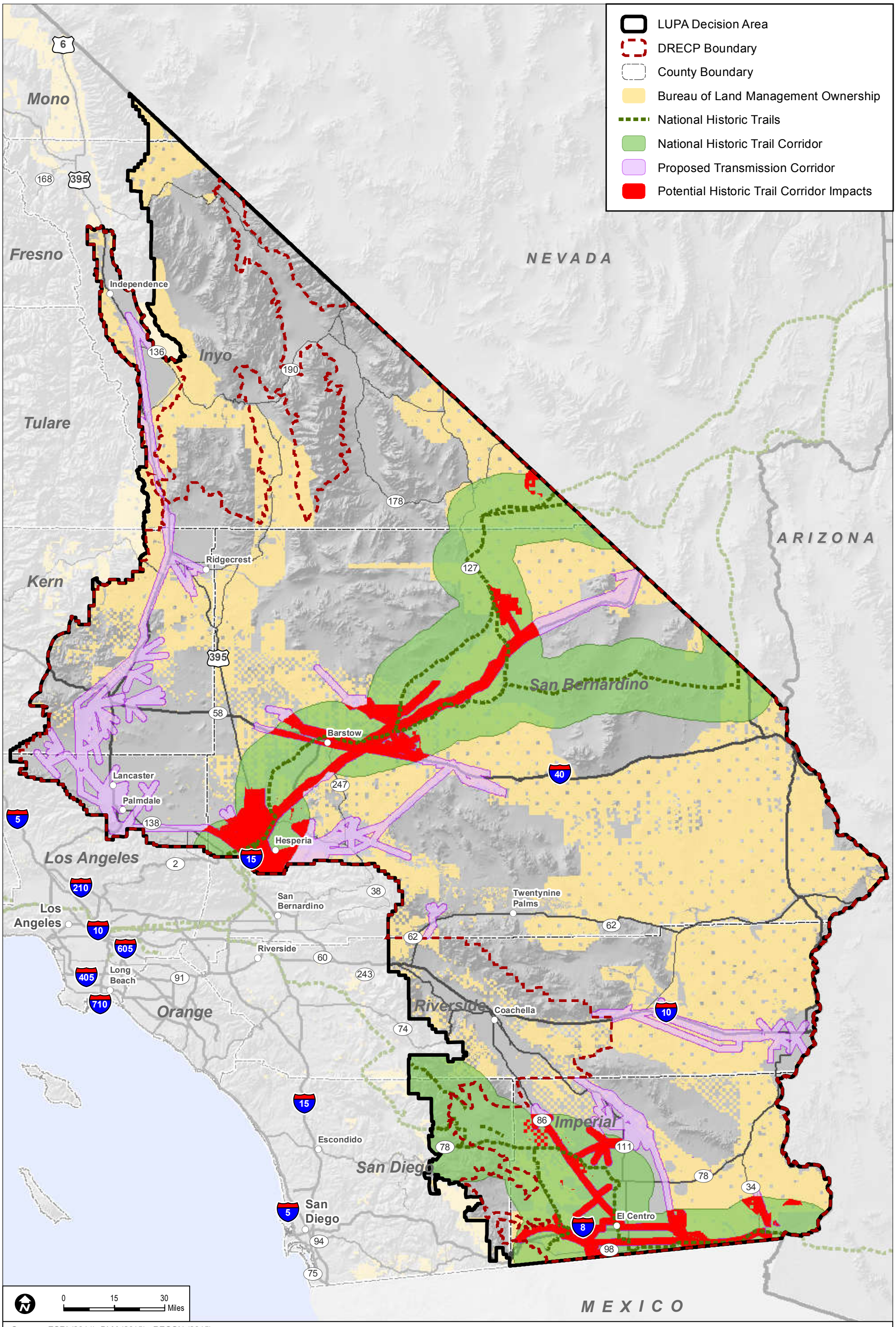
Alternatives are differentiated through the comparison of the number of estimated cultural resources which would be conserved in BLM land designations (Tables R2.8-8 and R2.8-15) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development (Tables R2.8-5 and R2.8-13).

The Preferred Alternative would impact fewer cultural resources in the DFA footprints as compared to Alternative 2. However Alternative 2 would conserve more resources in the conservation designations and significantly more resources in the NHT corridors due to an expanded corridor width. Overall, although Alternative 2 has more resources located within conservation designations and none located in Variance Process Lands, the number of cultural resources potentially impacted in DFAs is higher. The Preferred Alternative and Alternative 2 are very similar. However, due to the expanded NHT corridor width, Alternative 2 is more protective to cultural resources than the Preferred Alternative and is approximately the same as Alternative 3 as the most protective of all of the alternatives.

Geographic Distinctions

As this is a programmatic analysis, no particular sensitive cultural resources have been identified in any specific location within the LUPA Decision Area. However, different ecoregion subareas have different estimated cultural resources densities and some location types are known to be sensitive for cultural resources.

Under the Preferred Alternative, the Silurian Valley would be a conservation designation. Under Alternative 2, this location would be a DFA. Therefore, the Preferred Alternative could potentially protect more cultural resources than Alternative 2 because this location would be conserved.



Sources: ESRI (2014); BLM (2015); RECON (2015)

FIGURE IV.8-8

National Historic Trails within Alternative 2

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-8.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

Under the Preferred Alternative the Hidden Hills area would be undesignated, while under Alternative 2 it would be a DFA. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and a National Historic Trail. Therefore, the Preferred Alternative would preserve more cultural resources than Alternative 2.

Under the Preferred Alternative, the Notch in the Park and area north of Tehachapi would be Variance Process Lands. Under Alternative 2, these locations would be undesignated. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the area east of Twentynine Palms would be a Variance Process Land. Under Alternative 2, this location would be a conservation designation. Therefore, Alternative 2 would be more likely to conserve cultural resources than the Preferred Alternative.

Under both the Preferred Alternative and Alternative 2 the Owens Valley Dry Lake would be a conservation designation. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore both alternatives would protect cultural resources in this location equally.

Under the Preferred Alternative, Searles Lake between Ft. Irwin and China Lake would be a DFA. Under Alternative 2, this location would be a DFA. Therefore, the Preferred Alternative would be more likely to preserve cultural resources in this location than Alternative 2.

Under the both the Preferred Alternative and Alternative 2, the area along U.S. 395 north of Edwards Air Force Base would be a DFA. Therefore, both alternatives could have similar potential negative impacts to cultural resources.

IV.8.3.5 Alternative 3

IV.8.3.5.1 Impacts of Renewable Energy and Transmission

Renewable energy development activities covered by the Proposed LUPA would be facilitated within DFAs. Under Alternative 3, an estimated 5,719-archaeological and built-environment resources would occur within DFAs (see Appendix R2.8, Table R2.8-17). This represents approximately 1% of estimated archaeological and built-environment resources within DFAs in BLM-administered lands under Alternative 3. The density of these resources by ecoregion subarea is shown in Figure IV.8-9. The number of cultural resources impacted

by technology type is shown in Table R2.8-17. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document. Each impact is described below.

Proposed ACEC and NLCS designations on BLM lands could provide benefits to cultural resources by establishing disturbance caps, which are designed to conserve and protect resource values; renewable energy development would be limited in these designations. Development on NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 3, cultural resources found within BLM land designations are shown in Table R2.8-20. The majority of the estimated archaeological and built-environment resources (170,759) occur within the NLCS lands. In Alternative 3, the National Trail Management Corridor is 5 miles on either side of the centerline. As a result, an estimated 18,055 cultural resources would be protected. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document.

Impact CR-1: Effect on historic period built-environment resources.

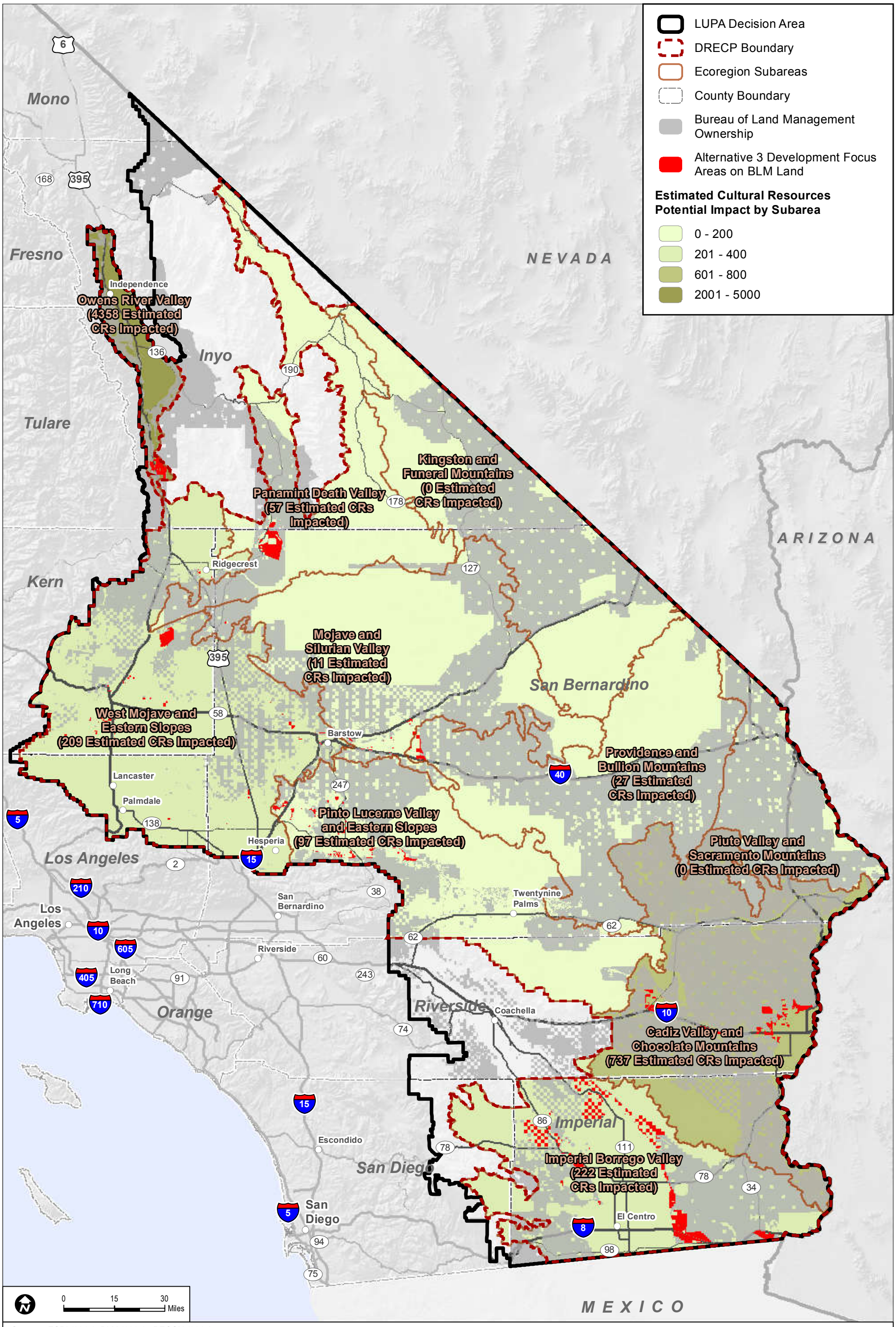
As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Effect on prehistoric and historic period archaeological resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Disturb human remains, funerary objects, sacred objects, and items of cultural patrimony.

As described in Section IV.8.2, disturbance of human remains or cultural items could result from construction-related ground-disturbance activities. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and cultural items, which are typically unmarked.



Sources: ESRI (2014); BLM (2015); RECON (2015)

FIGURE IV.8-9

Estimated Number of Cultural Resources within DFAs by DRECP Ecoregion Subarea – Alternative 3

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-9.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

Impact CR-4: Effect on Cultural Landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.

Impacts in Variance Process Lands

Variance Process Lands refer to areas that would be open for solar, wind, and geothermal energy applications under the Proposed LUPA but need to follow a variance process before BLM would determine whether to continue with processing them. These lands would be subject to the DRECP LUPA PA. Development in any of the Variance Process Lands could adversely impact resources important to tribes and other communities.

Under Alternative 3 there would be 2,332 acres of Variance Process Lands (Table IV.1-2, Appendix R2.8 Table R2.8-18). An estimated 23 archaeological and built-environment resources are present. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document.

Impact Reduction Strategies

The implementation of the Proposed LUPA would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the LUPA would be lessened in several ways. First, the LUPA incorporates CMAs for each alternative, including specific ones for cultural resource protection. Also, the implementation of a NHPA Section 106 PA with the ACHP, the California SHPO, and existing laws, orders, regulations, and standards would reduce the impacts of project development. The most recent version of the PA is available on line at www.drecp.org.

Design Features of the Solar PEIS

The design features of the Solar PEIS for cultural resources would be the same under all alternatives. These design features are as described for the No Action Alternative in Section IV.8.3.1.1. The DRECP LUPA PA would replace the Solar PEIS PA for renewable energy projects within the LUPA Decision Area . The most recent version of the PA is available on line at www.drecp.org.

Conservation and Management Actions

The conservation strategy for Alternative 3 (see Volume II, Section II.6.4) defines specific actions that would reduce the impacts of this alternative. The conservation strategy

includes specific CMAs, detailed for the Preferred Alternative. The CMAs would be the same under all alternatives with the following exceptions for cultural resources.

NLCS

Management of National Conservation Lands

1. ***Planning Area–wide National Conservation Land Management Direction***

    - **Cultural Resources.** Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 Code of Federal Regulations (CFR) Part 800. Resolution of adverse effects will in part be addressed via alternative mitigation that includes regional synthesis and interpretation of existing archaeological data in addition to mitigation measures determined through the Section 106 consultation process.

National Scenic and Historic Trails

Conservation and Management Actions for the Pacific Crest National Scenic Trail, and the Juan Bautista de Anza and Old Spanish National Historic Trails Management Corridors

- **Management Corridor Width.** Establish a National Trail Management Corridor, width generally 5 miles from centerline for the Pacific Crest Trail, and for high potential route segments and other known historically significant segments on the National Historic Trails. Additional segments of the NSHTs may be added to the management corridor as information becomes available on their qualifications as high potential route segments.
- **Management of Trail Corridors.** Manage National Trails as components of BLM's National Landscape Conservation System. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations will apply. Within these areas, the BLM will support the nature and purposes of the designated National Trails.
- **Cultural Resources:** Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 CFR Part 800.

IV.8.3.5.2 Impacts of Ecological and Cultural Conservation and Recreation Designations

Under Alternative 3, cultural resources would be protected from extensive disturbance by establishing new conservation designations. Proposed new ACEC and NLCS designations would protect cultural resources. This would occur partly from disturbance caps designed to conserve and protect resource values, and renewable energy development would be limited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and thereby provide protection for cultural resources.

Under Alternative 3, an estimated 226,319 resources (or 39% of all known archaeological and built-environment resources) would occur within conservation designations (see Table R2.8-19 in Appendix R2.8). The majority of the estimated archaeological and built-environment resources (170,759) occur within NLCS lands, with 92,311 on existing and proposed ACEC lands. As illustrated in Figure IV.8-10, in Alternative 3, the National Trail Management Corridor is 5 miles on either side of the centerline. As a result, an estimated 18,055 cultural resources would be protected. The number of cultural resources preserved by conservation designation type is shown in Table R2.8-19. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document. Due to their location within the conservation designations, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.5.3 Impacts of Transmission Outside the DRECP Area

The impacts of transmission outside the DRECP area on cultural resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.5.

IV.8.3.5.4 Comparison of Alternative 3 with Preferred Alternative

Cultural resources vary by alternative in three main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources located within conservation designations, and (3) the NHT corridor width and the number of resources conserved within the corridor. Table IV.8-4 compares the Preferred Alternative with Alternative 3.

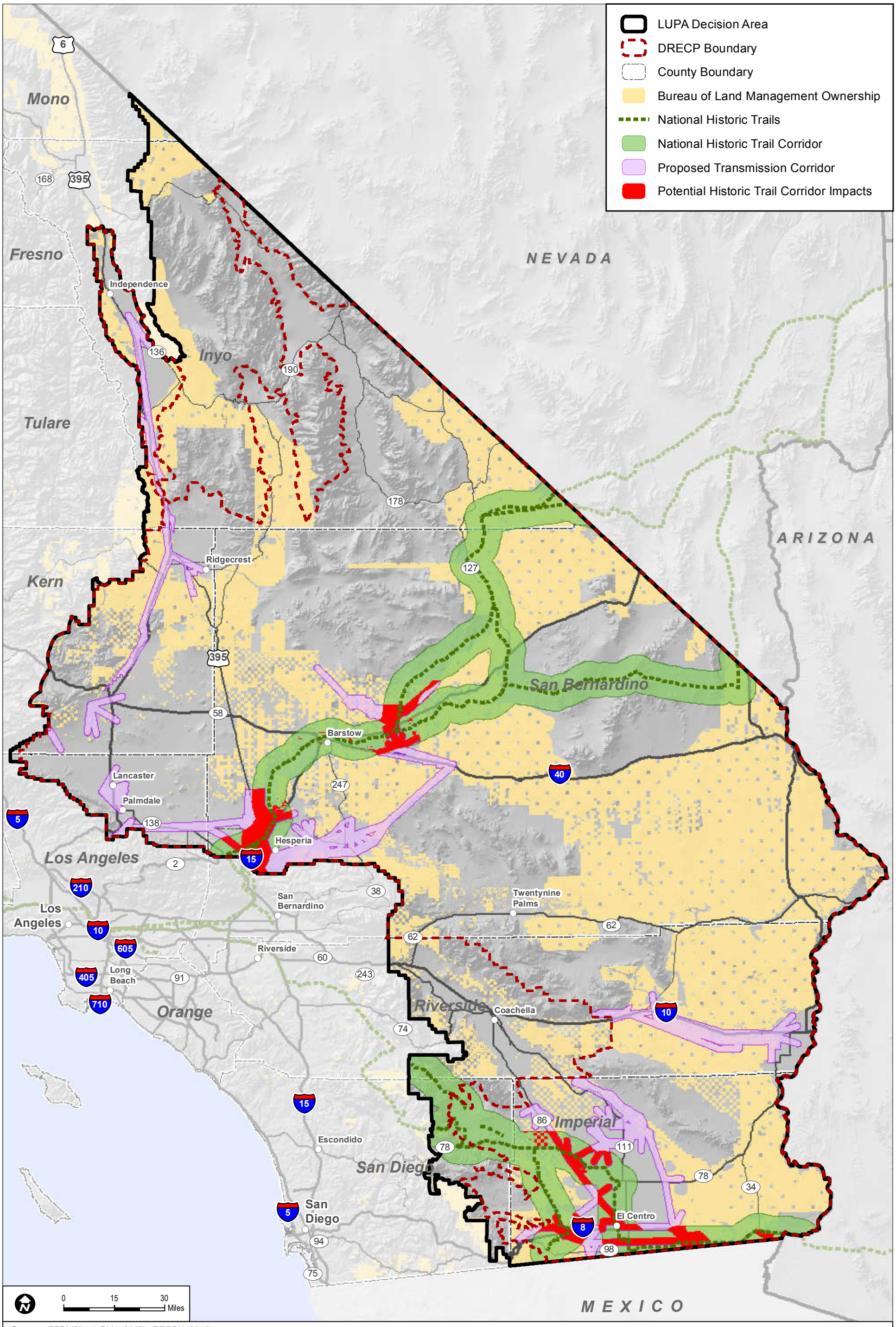
Table IV.8-4
Comparison of Preferred Alternative with Alternative 3

	Preferred Alternative	Alternative 3
Number of resources in DFAs	6,587	5,719
Number of resources in Variance Process Lands	1,025	23
Number of resources in SRMA	59,773	68,163
Number of resources in NLCS	179,656	170,759
Number of resources in Existing and Proposed ACEC	126,755	92,311
Number of resources in Wildlife Allocation	733	519
Number of resources in LWCs	16,260	21,570
Number of resources in Trail Management Corridors	3,185	18,055
Number of resources conserved in Conservation Designations	224,673	226,319
NHT corridor width	Approximately 2 miles on either side of centerline	5 miles on either side of centerline

Alternatives are differentiated through the comparison of the number of estimated cultural resources that would be conserved in BLM land designations (Tables R2.8-8 and R2.8-18) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development (Tables R2.8-5 and R2.8-16).

The Preferred Alternative would impact a greater number of cultural resources in the DFA footprints as compared to Alternative 3. Additionally, Alternative 3 would conserve more resources in the conservation designations and more resources in the NHT corridors due to the expanded width.

Overall, the number of resources conserved by Alternative 3 is larger, the NHT corridors are wider, and fewer resources could be impacted in DFAs and in Variance Process Lands. Therefore, Alternative 3 is more protective to cultural resources than the Preferred Alternative, and is approximately the same as Alternative 2 as the most protective of all of the alternatives.



Sources: ESRI (2014); BLM (2015); RECON (2015)

FIGURE IV.8-10

National Historic Trails within Alternative 3

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-10.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

Geographic Distinctions

As this is a programmatic analysis, no particular sensitive cultural resources have been identified in any specific location within the DRECP area. However, different ecoregion subareas have different estimated cultural resources densities and some location types are known to be sensitive for cultural resources.

Under the Preferred Alternative and Alternative 3, the Silurian Valley would be a conservation designation. Therefore, there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the Hidden Hills area would be undesignated. Under Alternative 3, this location would be a conservation designation. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and a National Historic Trail. Therefore, Alternative 3 would protect more cultural resources than the Preferred Alternative.

Under the Preferred Alternative, the Notch in the Park, the area north of Tehachapi, and the area east of Twentynine Palms would be Variance Process Lands. Under Alternative 3, these locations would be undesignated. In each alternative these locations could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under both the Preferred Alternative and Alternative 3, the Owens Valley Dry Lake would be a conservation designation. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, both alternatives would protect cultural resources in this location equally.

Under both the Preferred Alternative and Alternative 3, Searles Lake between Ft. Irwin and China Lake would be a DFA. Therefore, the Preferred Alternative would be more likely to preserve cultural resources in this location than Alternative 3.

Under the Preferred Alternative, the area along U.S. 395 north of Edwards Air Force Base would be a DFA. Under Alternative 3, this location would be a conservation designation. Therefore, Alternative 3 would be more likely to preserve cultural resources in this location than under the Preferred Alternative.

IV.8.3.6 Alternative 4

IV.8.3.6.1 Impacts of Renewable Energy and Transmission

Renewable energy development activities covered by the Proposed LUPA Final EIS would be concentrated in DFAs. Under Alternative 4, an estimated 7,862 archaeological and

built-environment resources would occur within DFAs (see Appendix R2.8, Table R2.8-21). The density of these resources by ecoregion subarea is shown in Figure IV.8-11. This represents approximately 1.5% of the estimated cultural resources within the LUPA Decision Area. The number of cultural resources impacted by technology type is shown in Table R2.8-21. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document. Each impact is described below.

Impact CR-1: Effect on historic period built-environment resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Effect on prehistoric and historic period archaeological resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

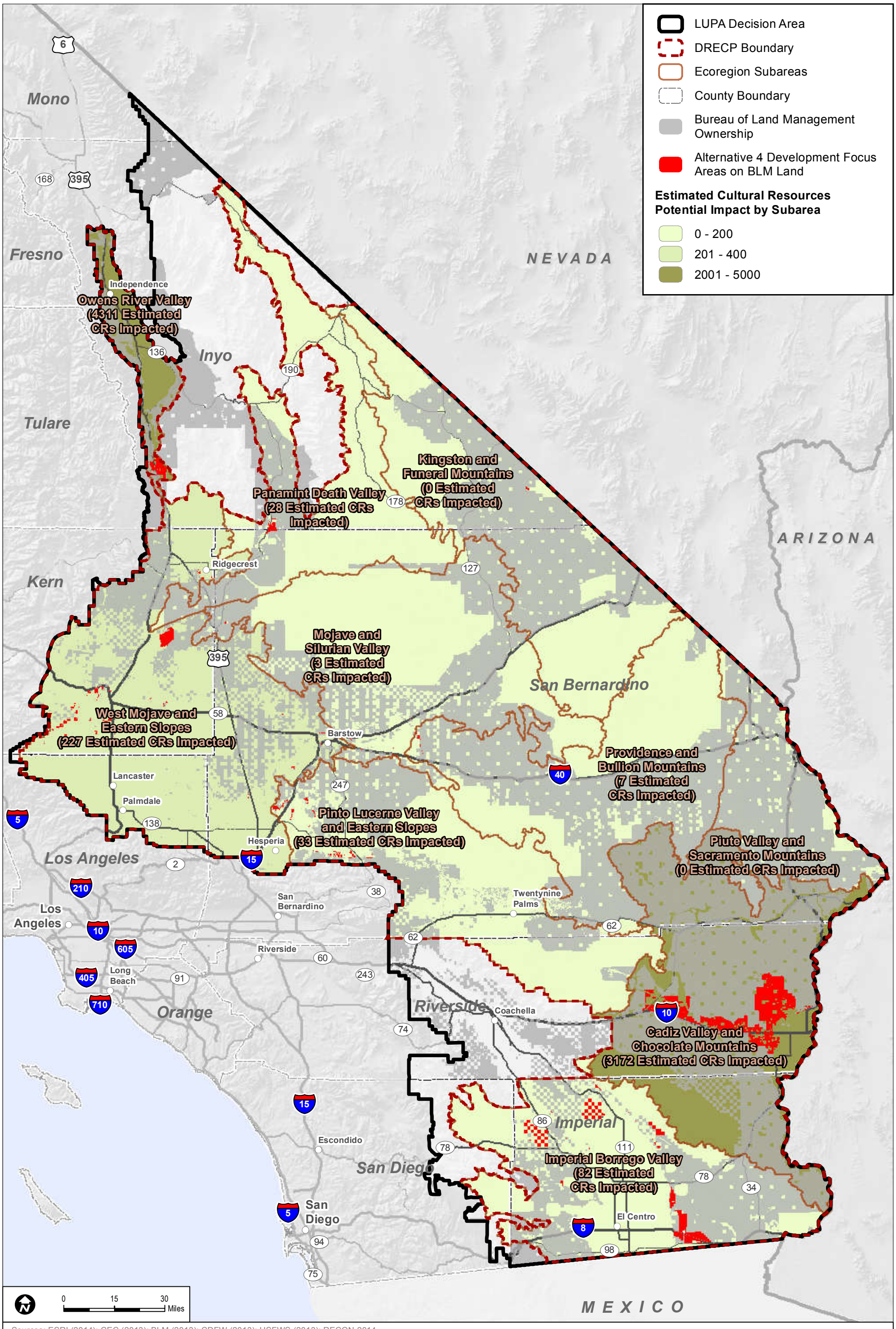
As described in Section IV.8.2, disturbance of human remains or cultural items could result from construction-related ground-disturbance activities. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and cultural objects, which are typically unmarked.

Impact CR-4: Effect on Cultural Landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.

Impacts in Variance Process Lands

Variance Process Lands refer to areas that would be open for solar, wind, and geothermal energy applications under the Proposed LUPA but need to follow a variance process before BLM would determine whether to continue processing them. These lands would be subject to the DRECP LUPA PA. Development in any of the Variance Process Lands could adversely impact resources important to tribes and other communities. Under Alternative 4, a total of 576,929 acres would be Variance Process Lands. This area is predicted to contain a total of 46,353 archaeological and built-environment resources (Appendix R2.9; Table R2.8-22).



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013); RECON 2014

FIGURE IV.8-11

Estimated Number of Cultural Resources within DFAs by DRECP Ecoregion Subarea – Alternative 4

DRECP Proposed LUPA and Final EIS

October 2015

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-11.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

Impact Reduction Strategies

The implementation of the Proposed LUPA would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the LUPA would be lessened in several ways. First, the LUPA incorporates CMAs for each alternative, including specific cultural resources protections. Also, the implementation of NHPA Section 106 PA with the ACHP, the California SHPO, and existing laws, orders, regulations, and standards would reduce the impacts of project development. The most recent version of the PA is available on line at www.drecp.org.

Design Features of the Solar PEIS

The design features of the Solar PEIS for cultural resources would be the same under all alternatives. These design features are as described for the No Action Alternative in Section IV.8.3.1.1. The DRECP LUPA PA would replace the Solar PEIS PA for renewable energy projects within the LUPA Decision Area . The most recent version of the PA is available on line at www.drecp.org.

Conservation and Management Actions

The conservation strategy for Alternative 4 (see Volume II, Section II.7.4) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes designation of conservation lands and specific CMAs, detailed in the Preferred Alternative. The CMAs would be the same under all alternatives with the following exception for cultural resources under this alternative.

NLCS

Management of National Conservation Areas

1. ***Planning Area–wide National Conservation Land Management Direction***

    - **Cultural Resources.** Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the National Historic Preservation Act and the implementing regulations at 36 Code of Federal Regulations (CFR) Part 800. Resolution of adverse effects will in part be addressed via compensatory mitigation that includes either protection of resources of importance to tribes or acquisition of comparable sites into public ownership similar to those that are going to be destroyed.

National Scenic and Historic Trails

Conservation and Management Actions for the Pacific Crest National Scenic Trail, and the Juan Bautista de Anza and Old Spanish National Historic Trails Management Corridors

- **Management Corridor Width.** Establish a National Trail Management Corridor, width generally 1 mile from centerline of the trail.
- **Management of Trail Corridors.** Manage National Trails as components of BLM's National Landscape Conservation System. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations will apply. Within these areas, BLM will support the nature and purposes of designated National Trails.

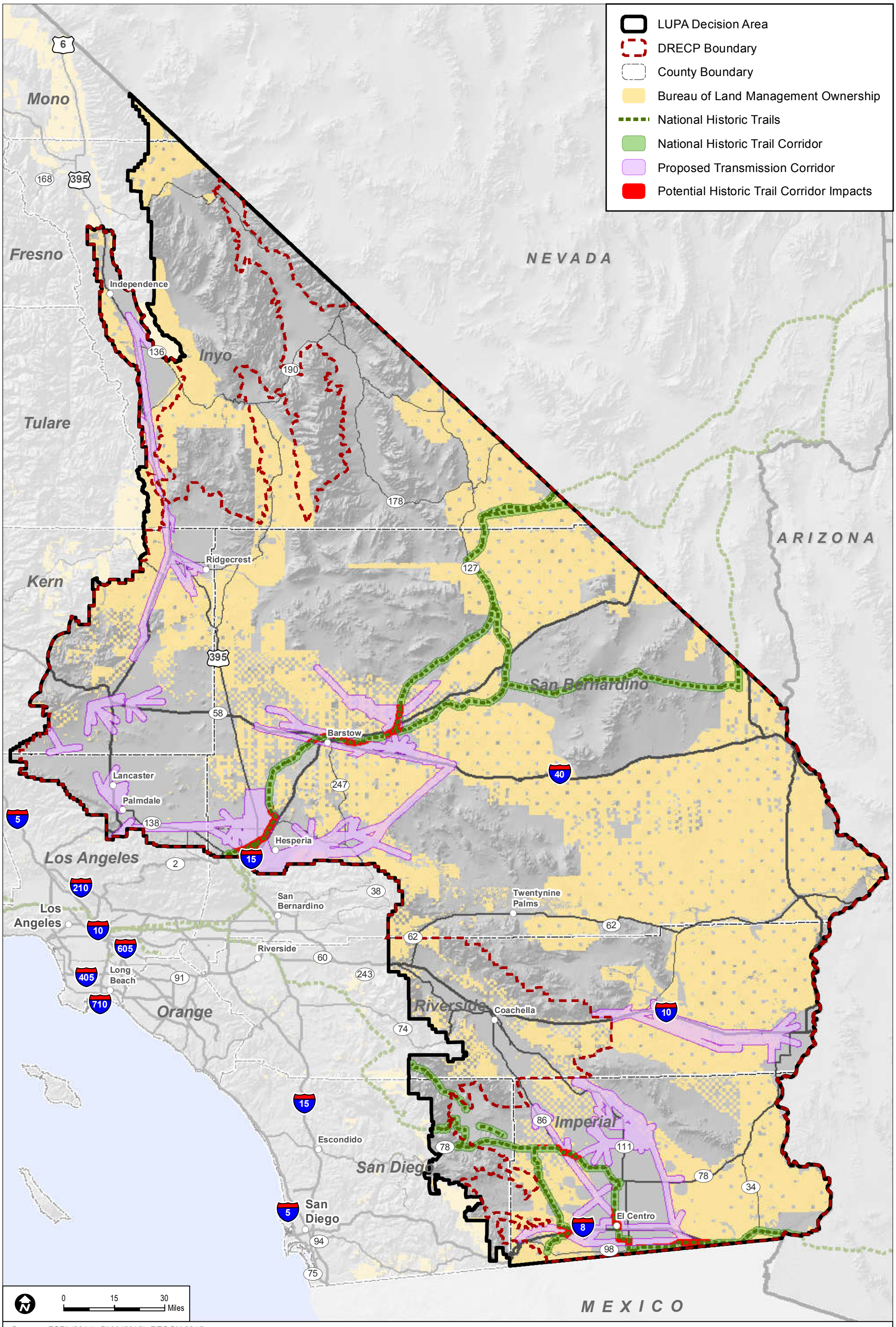
IV.8.3.6.2 Impacts of Ecological and Cultural Conservation and Recreation Designations

Under Alternative 4, cultural resources would be protected from extensive disturbance by establishing new conservation designations. Proposed new ACEC and NLCS designations would protect cultural resources. This would occur partly from disturbance caps designed to conserve and protect resource values, and renewable energy development would be limited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 4, an estimated 195,263 resources (or 34% of all known archaeological and built-environment resources) would occur within conservation designations (see Table R2.8-23 in Appendix R2.8). The majority of the estimated archaeological and built-environment resources (127,218) occur within NLCS lands. As illustrated in Figure IV.8-12, in Alternative 4, the National Trail Management Corridor is 1 mile on either side of the centerline. It would contain an estimated 7,165 archaeological and built-environment resources. The number of cultural resources preserved by conservation designation type is shown in Table R2.8-23. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner in this document. Due to their location within the conservation designations, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.6.3 Impacts of Transmission Outside the DRECP Area

The impacts of transmission outside of the DRECP area on cultural resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.5.



Sources: ESRI (2014); BLM (2015); RECON 2015

FIGURE IV.8-12

National Historic Trails within Alternative 4

M:\JOBS4\6287\common_gis\EIS_Figures_Spring_2015\Vol IV\8_Cultural\figIV.8-12.mxd 9/18/2015

INTENTIONALLY LEFT BLANK

IV.8.3.6.4 Comparison of Alternative 4 with Preferred Alternative

Cultural resources vary by alternative in three main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources conserved in conservation designations, and (3) the NHT corridor width and the number of resources conserved within the corridor. Table IV.8-5 compares the Preferred Alternative with Alternative 4.

Table IV.8-5
Comparison of Preferred Alternative with Alternative 4

	Preferred Alternative	Alternative 4
Number of resources in DFAs	6,587	7,862
Number of Resources in Variance Process Lands	1,025	46,353
Number of resources in SRMA	59,773	69,700
Number of resources in NLCS	179,656	127,218
Number of resources in ACEC	126,755	91,862
Number of resources in wildlife allocation	733	10,140
Number of resources in LWCs	16,260	10,288
Number of resources in Trail management corridors	3,185	7,165
Total number of resources conserved in Conservation Designations	224,673	195,263
NHT corridor width	2 miles on either side of centerline	1 mile on either side of centerline

In this section, alternatives are differentiated through the comparison of the number of estimated cultural resources that would be conserved in BLM land designations (Tables R2.8-8 and R2.8-22) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development (Tables R2.8-5 and R2.8-19).

The Preferred Alternative would impact fewer cultural resources in the DFA footprints, potentially impact fewer resources in Variance Process Lands, and conserve more resources in conservation designations and in NHT corridors as compared to Alternative 4. Overall, a larger number of resources would be protected by the Preferred Alternative as compared to Alternative 4. Alternative 4 is the least protective of cultural resources of all the alternatives.

Geographic Distinctions

Because this is a programmatic analysis, no particular sensitive cultural resources have been identified in any specific location within the DRECP area. However, different

ecoregion subareas have different estimated cultural resources densities, and some location types are known to be sensitive for cultural resources.

Under the Preferred Alternative, the Silurian Valley would be a conservation designation. Under Alternative 4, this location would be in Variance Process Lands and thus potentially open to development. Therefore, the Preferred Alternative would be more protective of cultural resources in this location.

Under the Preferred Alternative, the Hidden Hills area would be undesignated. Under Alternative 4, this location would be a DFA and in Variance Process Lands. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and a National Historic Trail. As the Preferred Alternative has the potential to be conserved or developed, it would protect a greater number of cultural resources than Alternative 4.

Under the Preferred Alternative, the Notch in the Park, the area east of Twentynine Palms, and the area east of Tehachapi would be Variance Process Lands. Under Alternative 4, the first two locations would be undesignated and the third would be in Variance Process Lands. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under both the Preferred Alternative, the Owens River Valley Dry Lake would be a conservation designations. Under Alternative 4 this location would be Variance Process Lands. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, the Preferred Alternative would be more protective of cultural resources in this location.

Under the Preferred Alternative, Searles Lake between Ft. Irwin and China Lake would be undesignated. Under Alternative 4, this location would also be undesignated. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the area along U.S. 395 north of Edwards Air Force Base would be a DFA. Under Alternative 4, this location would be a conservation designation. Therefore, Alternative 4 would protect more cultural resources in this location than the Preferred Alternative.